GLEANINGS IN BEE CULTURE

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EDITORIAL

By E. R. ROOT.

IN our locality the frost has held off; in fact, we have not had any worth mentioning up to this date, Oct. 11. This is rather unusual. It may mean a severe winter when it does come; for nature seems to have a fashion of balancing up one extreme with another in this matter of weather conditions.

HONEY-CROP CONDITIONS AND PRICES.

THERE is nothing new to report beyond what we have already given in these columns, except that there is a light crop of clear white Eastern honey. Western alfalfa may be shorter than the first reports showed. The market should rule firm. The weather is becoming a little cooler, and now is the time, if it ever does, that honey ought to reach its maximum price.

A SCHEME FOR RELEASING A BALLED QUEEN.

AT this time of the year a good many queens will be introduced to replace old and failing ones; and it sometimes happens that the new queen will be balled. Mr. Pritchard, of our north yard, has practiced with considerable satisfaction the scheme of squirting sweetened water from a spring-top oiler on the mass of angry bees. This so disconcerts them, he says, that the ball begins to melt away, and the bees begin to lick off each other and the new queen also, apparently forgetting their matricidal intent. All goes on well thereafter.

IS HONEY-DEW FIT FOR A WINTER FOOD?

A COUPLE of our correspondents inquire why we condemn honey-dew for winter food. One of them, a prominent bee-keeper, says he will take his chances on it for his bees.

What would be a safe policy for an old veteran to pursue might be a dangerous one for a beginner. In offering the advice to remove the dark honey-dew and feed sugar syrup we had in mind beginners. The veterans, we always consider, will use their own judgment as to whether it would be good policy to follow the line of our recommendations or not. Whether honey-dew of the dark sort will bring on dysentery in a wholesale way this coming winter and spring will depend largely on the winter and the kind of housing or protection the bees have. A severe winter with poor conditions would mean a greater probability of dysentery with honey-dew than with a good quality of sugar stores. In a good many cases the honey-dew can be sold for the price of sugar syrup; and there can be no question but that the latter is a much superior food, and at a fairly even trade it should be by all means given.

THE SHAKE-OUT METHOD OF INTRODUCING QUEENS.

IN our issue for September 15, p. 556, we spoke of the fact that Mr. Mell Pritchard, who has charge of our north yard, had been very successful with the shake-out method of introducing queens; namely, by shaking the motherless bees off the combs in front of the entrance, and dropping the queen to be introduced among them as they rush for the hive. We have been testing this plan at our south yard. On the first three or four queens the scheme worked admirably; but on the next lot, another day, three out of four of the queens were subsequently found missing. Until we can try it further we would suggest caution, not using it on queens of any great value.

Later.—Since writing the foregoing we have had a talk with Mr. Pritchard. On comparing notes we find that he used this method only on colonies that had long been queenless; while we, on the other hand, killed the old queen, and at the same operation shook all the bees out and released the new queen as they ran in. While it proved successful on the first lot of queens so introduced it was a practical failure on the next lot. Perhaps the average reader will say we ought to have known better; but as it was getting late we wished to put the method to a severe test. If it stood this test it ought to be good at any time.

NEARLY THREE THOUSAND QUEENS FROM ONE YARD.

AT our north yard, our Mr. Mell Pritchard, with a boy to help him during the heaviest part of the season, raised 2873 queens, beginning about the middle of May and ending the first of October. Of this number, 2574 were laying queens; the rest, 299, virgins. The cells were raised in full colonies under what might be called the swarming impulse produced artificially. The queens were mated in what are called twin baby nuclei. A tight-fitting division-board separates two sets of

families, two frames to each compartment. A little later we will show photos of the appliance, and give some details describing the method we used for rearing the queens at this yard.

PUTTING BAITS IN THE CORNERS OF THE SUPERS.

CONSIDERABLE evidence is now accumulating to the effect that in the giving of bait sections it is desirable to put them in the *corners* rather than in the center of the super. While this is a matter that is somewhat out of season at this time of the year, we mention it at this time because it has been hitherto recommended that baits should be given in the *center* of the super. If there are any of our readers who think that the plan of putting them in the corners is objectionable, we should be glad to have them tell us of their experience.

MORNING SHADE DETRIMENTAL TO COLONIES BUILDING UP IN THE SPRING.

IT was Mr. E. W. Alexander who made the observation that a colony under a dense shade would not build up in the spring as well as one more exposed to the sun's rays.

Our Mr. Bain, who has charge of our home yard, has observed that those colonies that are arranged along near the factory buildings on the *east* side, where there is dense shade in the morning, do not build up like those out in the center of the apiary and on the west side next to the row of evergreens. While on the *west* there is this dense growth of tall evergreens, the *afternoon shade* does not seem to be particularly detrimental. It is true it may be a disadvantage in the fall of the year when it is a little cool; but at such times bees are not rearing brood as a rule.

Mr. Bain also finds that a colony out in the open, and on the west side, will be out working, going to the fields for pollen, hours before those that are situated within a comparatively few feet of the factory buildings.

Some other apiarists have observed something similar, and we wish to suggest that those who propose locating their bee-yards avoid a dense morning shade.

TWO QUEENS INTRODUCED SUCCESSFULLY FROM THE SAME CAGE AT THE SAME TIME.

WE have before us in two separate mailing-cages two queens that were reared together, and that have been doing duty side by side for some time.

As the season was drawing to a close, our Mr. Pritchard, at our north yard, had a surplus of virgins that came near starving to death. He had no place to put them, but he picked out two of the best, and put them into *one* Miller introducing-cage. This cage of two queens was then given a compartment in a baby nucleus, and, contrary to what he expected, both queens were kindly received; both were fertilized, and both began laying side by side without showing any inclination whatever to quarrel.

Mr. Pritchard accounts for these two virgins not fighting, when placed together, to the fact that they were nearly starved. When put in the same cage they both began to eat away the candy. If they had not been nearly starved, he says the first thing they would have done would be to engage in a mortal combat.

We place this before our readers as it may be a hint as to how queens under some conditions may be introduced *to each other*.

PROSPECTS FOR CLOVER IN 1910.

WHILE the season this year for Eastern clover honey has been largely a failure, the prospects for this honey another year were never better, if they were as good. In our locality, and from the general reports that are coming in, there was never a larger amount of clover in the fields than this season.

There will also be, in addition to the white clover, immense quantities of alsike. This is due to the fact that two years ago the price of red-clover seed was very high, and in many localities it would seem the seed would fail to catch. The farmers have begun to learn that alsike will take root and thrive where the ordinary peavine and red would make a poor showing. They have also learned that alsike, when sown with timothy, makes a very superior quality of hay.

Taking every thing into consideration, we have every reason to believe that, unless there be severe winter-killing, 1910 will be a banner year for alsike and white-clover honey. The conditions of this summer have been very favorable for the growth of young clovers throughout the country. While there are some sections where there has been a drouth, yet in the generality of cases the clovers are looking remarkably well.

THE AMOUNT OF ACID USED IN SUGAR SYRUP TO PREVENT GRANULATION.

IN our editorial in last issue, page 589, wherein we gave general instructions on how to make syrup for winter food, we incidentally mentioned the use of honey or acid to prevent granulation. Quite a number have since written in, asking the amount of acid to a given amount of sugar.

Dr. Miller, in his "Forty Years Among the Bees," recommends a teaspoonful of tartaric acid to every twenty pounds of sugar; Cheshire, one-half tablespoonful (or one-half ounce) of vinegar with each four pounds of sugar. But he says vinegar is an uncertain quantity, as its effect depends upon the very variable amount of acetic acid it contains. He says, therefore, that tartaric or citric acid may well replace it; that one-fourth ounce of either will be sufficient for eight pounds of sugar.

Cheshire appears to recommend an excessive amount of acid to the sugar, or much more, in fact, than Dr. Miller. We would err on the safe side by giving the smaller quantity; viz., not more than a teaspoonful

to twenty pounds of sugar. The amount of water may vary according to the time of the year when the bees are fed. For late fall feeding we would recommend 2½ lbs. of sugar to one of water; for feeding in early September, two of sugar to one of water.

With regard to the use of either acid or honey, we have never found it essential. We simply mix up the sugar and water, stirring until the sugar is all dissolved. Sometimes we mix them cold; but hot water facilitates the process very materially.

SOURCES OF HONEY-DEW.

A SHORT time ago we wrote to Prof. H. A. Surface, Economic Zoologist for Pennsylvania, at Harrisburg, inquiring whether he had been able to identify the species of insects of the genus *Aphis* that was responsible for the large amount of honey-dew that has been found in nearly all of the Eastern States; whether he knew of any reason why the insects were more prevalent this year than usual. We suggested that conditions of last spring were possibly very favorable for their growth, and then we asked if he thought that the aphides come and go in cycles of years like the seventeen-year locusts, adding that there has been no large amount of honey-dew since the year 1884.

The reply received is of such general interest that we place it before our readers, especially so as Prof. Surface is regarded as one of the most prominent entomologists in the country to-day.

Replying to your inquiry concerning honey-dew, which has been produced in such unusual abundance this summer, I beg to say that it is liable to be produced not only by any species of the genus *Aphis*, of which there are immense numbers, but also by any representative of the family *Aphidæ*, or the great group of plant lice, and also by some of the scale insects, such as the *Lecanium* and soft-scale. This season seemed to be very favorable for a great superabundance of plant lice and scale insects. As a natural consequence the honey-dew secretion was unusually abundant. As a rule I doubt if the weather would have much influence upon them, although it would be true that they would be supposed to be more abundant during dry weather, because they are kept in check by very hard and cold rains. They are chiefly controlled by their natural enemies, such as the lady beetles, syrphid flies, larval lace wings, or plant-lice lions, braconid parasites, fungous diseases, and even some species of birds, such as chickadees and kinglets.

It has been supposed to a considerable extent that this honey-dew is a secretion through the cornicles or so-called honey-tubes of the plant lice; but it is not always secreted by this means, as some insects producing it do not have the cornicles, which are seen on the backs of the abdomens of most species of plant lice when examined under a microscope. From these insects which do not have honey-tubes, the honey-dew may be produced through the vent, as has been observed in some of the aphids, and there would be then some discussion as to whether it would be properly called an excretion or a secretion. I believe, however, that it is comparable to the production of milk, and its purpose is to stimulate ants to take care of the insects or the eggs of the insects producing it. It is remarkable what care ants take of plant lice or their eggs, in order to be able to visit these little pests and eat the sweet liquid as their food.

I have never known a year in all my studies of entomology, and in my correspondence of thousands of persons each month, during which the plant lice or aphids have been so abundant as they were this year, and, consequently, that is to say that the honey-dew was likewise unusually abundant. I believe that the insects are liable to occur upon almost any species of plant, although, as a rule, any one species of insect is liable to confine itself to only a few species of plants, and those generally of the same family. In my studies I have tried to make lists of the different species of plant lice attacking each kind of plant or crop, and on the other hand an equally important list of all the food plants which any one species of aphid would attack. This is why I desired specimens. It is possible that the enemies of plant lice will be able to check them down considerably by next year, so that they will be no more abundant than usual; but I fear that the unusually dry weather in this part of the country will seriously reduce the white-clover crop.

H. A. SURFACE,
Harrisburg, Pa., Sept. 22. *Economic Zoologist.*

CONVENTION OF THE NATIONAL BEE-KEEPER'S ASSOCIATION; A BRIEF REPORT OF THE LAST ANNUAL MEETING IN SIOUX CITY, IOWA, SEPT. 22 AND 23.

AT the last minute, unforeseen contingencies arose by which it was impossible for either E. R. or H. H. Root to attend the National convention. We therefore requested our Chicago representative, Mr. R. W. Boyden, to go in our stead. He sent in a brief report, which we present herewith:

At the fortieth annual convention of the National Bee-keepers' Association, the attendance, while good, was rather smaller than had been expected. Among those present were George E. Hilton, George W. York, N. E. France, C. P. Dadant, Dr. E. F. Phillips, Dr. G. Bohrer, O. O. Poppleton, Edwin E. Kretchmer, Eugene Secor, and W. H. Putnam.

The meeting was called to order promptly at 10 : 30 A.M., Sept. 22. The secretary not being present, R. A. Morgan, of Vermillion, S. D., was appointed secretary *pro tempore*. The president appointed several committees—one on resolutions, another on question-box, program, etc. The meeting then adjourned to meet at 1 : 30 P.M.

The Committee on Resolutions reported as soon as the meeting was called to order. The most important resolution was one concerning a change in the constitution, which would permit the president or acting president, at each meeting of the association, to appoint a committee from those present, to consist of one representative from each State to act with the Executive Committee (which includes the president, vice-president, secretary, and treasurer and manager of the association) to make nominations for the following elections. This year a motion was made that the president appoint a committee to make such nominations, to be used in connection with nominations already made; but in order that nominations for ensuing years be made by such a committee it was found necessary to change the constitution. A committee was, therefore, appointed to arrange for making this change so that nominations hereafter may be made by a committee as above mentioned.

The nominations submitted were as follows:

For president, Geo. W. York, Chicago; Thos. Chantry, Price, Utah.

For vice-president, W. D. Wright, Altamont, N. Y.; Geo. M. Bently, Knoxville, Tenn.

Secretary, Morley Pettit, Jordan, Ontario; Louis H. Scholl, New Braunfels, Texas.

President and general manager (one only), N. E. France, Platteville, Wis.

For the three directors, six nominations were made: J. E. Crane, Middlebury, Vt.; J. J. Wilder, Cordele, Ga.; R. A. Morgan, Vermillion, S. D.; Edwin G. Brown, Sergeant Bluff, Ia.; B. A. Hadsell, Buckeye, Ariz.; E. F. Atwater, Meridian, Idaho.

The report of the nominating committee was adopted as read, and the committee discharged.

Three papers were read and discussed—one entitled "Shaking Energy into Bees," by Geo. W. Williams, of Redkey, Ind.; another on "Putting in Comb Foundation," by K. P. Southworth, of Salix, Ia.; and the last, "Bee Diseases," by Dr. E. F. Phillips. These papers were fully discussed, and much interest was shown in them.

From newspaper clippings, we judge that the attendance was small, and that only three papers were read, the rest of the time being taken up with the question-box and discussions. We hope that another year the National will have a big meeting;

STRAY STRAWS

BY DR. C. C. MILLER

DON'T FORGET, when there's a shortage in the home market, that you ought not to sell to your grocer for the price you could get for it in a distant market, but for about the price it would cost him if he bought in that market.

THAT PLAN of having for State fairs a *permanent* equipment of observatory hives, glass jars, etc., page 597, is very bright, and worthy of imitation in other States. I suspect that long-geared German who is superintendent of the apiarian department got up the plan.

FOUNDATION-SPLINTS were originally used by me for the sole purpose of getting combs built clear down to bottom-bar. It was a long time before I learned that they had a much more important office, preserving the proper size of cells for the use of the queen at the top, without having an inch or two of honey there. This year I noted again frame after frame during the breeding season with brood clear up to the top-bar. That's the work of the splints, and that part of their work they do, even when the bees gnaw away the lower part. You may count on that gnawing if the bees have the splints when they are not gathering.

QUEEN-EXCLUDERS with perforations of .187 of an inch allow young queens to pass, but .177 holds them, says Monjovet, *Apiculteur*, 314. [Dr. G. L. Tinker, some 20 years ago, conducted an elaborate series of experiments, testing the different sizes of perforations of queen-excluding zinc. He found that .160 was too small, and .168 and .170 too large; .165 was about right, except that it would occasionally let a queen pass, and therefore he decided on .163. Some four or five years later we went all over Dr. Tinker's work very carefully, and came to the conclusion that the size could be anywhere from .163 to .165, but decided on .165 because we thought it was better to let an occasional queen pass than to put up a hindrance to all bees when loaded with honey.—ED.]

MR. EDITOR, don't be too much discouraged at that "big barrier," p, 557. Even if we never control mating, persistent breeding from best queens and encouragement of best drones can not fail to bring *general* as well as individual improvement, and in time *all* our drones will be improved, no matter what the point of improvement aimed at. I know it from what I've done myself. [Yes, but the process is very slow; but when one has a strain of bees with extraordinarily long tongues it is very difficult to perpetuate that strain, because the "sport" is so far removed from the average stock that it has a strong tendency to revert back to the general average. If we could control the male parentage, as can be done with ordinary domestic stock on the farm, it would be very easy to retain the trait.—ED.]

I'VE HAD more uniting than usual this year. Here's how: At a time of day when all bees are in the hive, bring one hive and set it over the other, on the stand of the latter, a sheet of newspaper between. A few days later move any frames of brood from the upper to the lower story. The bees unite so gradually by gnawing away the paper that there is no fighting, and the temporary imprisonment in the upper story makes the bees stay in the new location. [Strange that we at Medina have so little trouble about uniting our bees in the fall. While, of course, the old bees will return to their old stands, it is seldom if ever that there is any fighting. A gentle strain of Italians, according to our experience, will unite where the extra yellow or cross bees would fight each other to a finish. Nevertheless, it is, perhaps, wise for the beginner to err on the safe side—to use smoke or to separate the two divisions of the united colonies by a sheet of newspaper as above described.—ED.]

"FOR THE PURPOSE of extracting, wires are much better than splints," page 612. I wonder, now, I wonder. If you know that the two have been tried side by side, and that the splinted combs break out more readily than the wired ones, then I've nothing to say. If you're only reasoning that as the splints "can be only partially attached to the frame they can not hold the combs in the frames as well as wires," then I think the question is still open. When a comb breaks in the extractor, in my little experience it always broke first in the center, providing it was well built to the frame. Is not the comb built to the frame as well with splints as with wire at top and sides, and better at bottom? Is not the splinted center a little stiffer than a center with sagging horizontal wires? *Does* a splinted frame, fastened well on four sides, break out more easily than a wired one? I don't know—I merely ask. [No, we were not aware that the two methods of supporting foundation in the frames had been tried side by side in extracting; but it would seem that, where the stays are not securely fastened to the end-bars or top and bottom bars, if the line of breakage is at the point where the comb joins the top-bar, the splints would not hold the comb in the frame nearly so well as if they had been wired, wires passing through the end-bars. Even if the combs were broken entirely loose from each of the end-bars, the wires would hold the combs just the same. Unwired or unstayed combs break out in getting to and from the extracting and in uncapping, more because there is no connection to the bottom-bar, or only a very partial connection to the end-bars, the line of cleavage taking place very close to the top-bar. Unless the wood splints pass through the bottom-bar and top-bar, and are glued there, the comb would fall out of the frame if not built down to the bottom-bar and end-bars, almost as readily with the splints in as without. Yes, we were arguing that the splints could be only partially fastened to the frame. It is that fact we had in mind when we made the comparison.—ED.]

BEE-KEEPING IN THE SOUTHWEST

By Louis Scholl, New Braunfels, Tex.

ADDING SUPERS ABOVE OR UNDERNEATH.

Empty supers are added *underneath* the nearly filled one here, Dr. Miller, instead of above, *a la* Townsend—Straws, page 558. If you will read page 491 again you will find this reason. By providing extra super room early for both the queen and the bees, we prevent a clogged brood-nest. When the queen gets back below later, she finds a fine place there, with lots of room, and she remains down in the brood-chamber the rest of the season if we keep the honey out of it by giving plenty of super room as needed. The empty supers are given underneath, and the queen does not bother them, because she has sufficient room in the brood-chamber. Without such a condition of the brood-chamber the queen would go into the supers, hence they would have to be put above the first one already on, resulting in a great loss to the bee-keeper, both in honey and in labor.

It is well known that bees are loath to work well above sealed stores in the brood-combs, let alone a full super above these; and it is extra work to place the supers above first, and then below later. This plan works here only in the best of flows. In our long slow flows it would mean a loss of 40 to 50 per cent to us. I tried it once (no more), after Mr. Townsend advised it toward the close of the season. A late flow surprised me, and all colonies with supers *underneath* filled them, while all those above were only half full.

SHALLOW SUPERS JUST AS GOOD IN THE NORTH.

We have never believed that shallow supers, with their many advantages both in comb and extracted honey production, would be adapted only to our southern climate, for we have been convinced that their adoption as divisible brood-chambers as well as for supers would give better results if the right kind of system were used in connection. We certainly find them more profitable in our apiaries, and know that there are many others who do also, not only in the South but in the North, to which a good many letters testify. Here is one to the point from Minnesota:

Mr. Scholl:—Your mention of the shallow supers in the July 15th issue exactly accords with my experience. As I have a lot of deep supers on hand I am very sorry that I did not adopt the shallow ones before. We had a light flow here from white clover, and the colonies that had shallow supers stored considerably more honey, and of a much better quality, on account of its being entirely capped, than the colonies having the deep L. supers. Just now a little honey is coming in, and newly hived swarms are working well in shallow supers, while but very little is being done in the deep supers. Hereafter I shall use nothing but shallow supers. G. A. Barbisch.

LaCrescent, Minn.

SMALL BEES FROM OLD COMBS.

Tut, tut, Dr. Miller, p. 556. Mr. Crawshaw is right. One of my colonies had a *great number, hundreds, of the very smallest honey-bees I ever saw.* They were but little more than half the size of their sisters, and the cutest little things. Investigation showed a very old comb right in the brood-nest, and it was fun to see these little dwarfs emerge in such numbers. They worked afield too, but I put the comb to one side, and later took it out of the brood-nest altogether. Before melting the comb, which I kept a long while, I cut out small pieces, a few of which I think I still have in my desk. The comb was $1\frac{1}{16}$ inches thick—probably as far as the bees could go, while the midrib ranged in thickness from $\frac{3}{16}$ to just an even ½ inch. Many cells were only ¼ inch deep—so shallow and small in circumference that one can imagine the dwarfs that came out of them. Dissolving some of the thick midrib in spirits of alcohol, the cocoons were separated by means of very sharp-pointed tweezers. This was easily done after cutting, with a very sharp razor, a cross-section of the cells. Cell No. 1 revealed 51; cell No. 2, 56; and cell No. 3, 48 cocoons, the base of which all contained more or less excrement, which took up space. I am not positive whether 56 generations of bees were all that were raised in that comb. It shows, however, that very old combs must in time necessarily produce smaller bees.

GETTING MORE FOR YOUR HONEY CROP.

While the bee-keepers up north are harvesting their crop the Texans have already disposed of nearly all of theirs, including the odds and ends, so that it is a difficult matter to obtain any more honey. There are only a few scattering ones who have not disposed of their entire crop. But there are a few localities, also, where the honey crop is a little later, and hence there is still some unsold honey. Our case is one of these latter. Moreover, for years we have practiced tiering up and leaving the honey on the hives until late in the season. This plan certainly pays us. While the bees are rolling in the honey we do nothing but try to produce as much as possible while we can, by tiering up and watching the bees closely. At this time we are always too busy to take off and sell honey, although nearly every one else does at the average market price year after year.

After we have made all the honey possible we have more leisure time, and we begin shipping our crop. The honey has been on the hives longer, is riper and better, and, besides this, we have more of it. Prices meanwhile have stiffened since every one else has sold out, so that we get more for what we have. Why? Because our honey is better; it is the kind those Michigan bee-keepers advertise and sell at a fancy price. This has been the secret why we can handle more bees, secure a larger crop, obtain a better quality, and command a higher price.

SIFTINGS.

BY J. E. CRANE, MIDDLEBURY, VT.

The article by W. Z. Hutchinson, page 431, July 15, is well worth the attention of large honey-producers, and still it seems doubtful if the *average* producer could secure the same results with the same amount of advertising.

"The best way to advertise honey," by F. J. Root, page 435, is a subject that should receive the thoughtful attention of our larger bee-keepers' associations. We have found in our trade that one person thoroughly interested in the sale of honey will do more to make it move than a dozen half-hearted dealers that keep it because they must. It may be a woman in an office or factory, or a retail merchant or peddler; but they make it move.

Editorial on page 389, on selecting a hive for some particular purpose, reminds me of a recent visit to the home of Mr. Allen Latham, at Norwich, Conn. Situated in a section of country that most bee-keepers would think most unpromising for extensive bee-keeping, with very little clover or basswood or even buckwheat, one would think his chances for success poor indeed, especially as he is engaged most of the year in other business. Yet with almost scientific accuracy he has evolved a hive and system adapted to his spare time and location that enables him not only to succeed but to realize a good profit from his spare time.

HIS HIVE.

He calls this hive his "Letalone." It is well named, surely; for when once a colony is established in one of them he will sometimes leave them for a year without any attention or even seeing them, and then only to remove the surplus honey. He has a summer camp near the extreme end of Cape Cod, where he spends a part of his vacation, and here he has his bees and hives, and makes them pay too, although the climate is bleak and the soil little better than shifting sand dunes, and only a narrow strip of that. Beach plums, water hoarhound, and huckleberries appear to be his principal sources of honey on the cape, while at his home in Norwich he has an abundance of sumac and a fair supply of goldenrod and asters as well as other flowers.

Of course, his hive is practically a non-swarming one, not more than two or three per cent (perhaps less) offering to swarm. The quality of his sumac honey was a surprise to me, comparing very favorably with our clover honey in both color and quality. I must confess that I like the clover best; but I suppose almost every person is partial to the honey to which he has long been accustomed.

Such success as Mr. Latham has made amid such surroundings is helpful in knocking the conceit out of some of us older bee-keepers, and showing us there are some things we may yet learn to our advantage.

That Mr. Latham has thought of other things than bee-keeping is seen in his delightful home and charming family.

Our friend Holtermann wisely reminds us, page 352, July 1, "When the dealer's profits vanish as a result of breakage he does not feel like making another investment," etc. Just so; and we have just heard from some of those Canadian dealers, although they were previously unknown to us. Messrs. Rutherford, Marshall & Co., "Dealers in butter, eggs, cheese, poultry, lard, dried apples, hams, bacon, comb honey, etc.," of Toronto, desire to instruct the apiarists of Ontario how to ship their honey safely; and as I don't like to keep a good thing to myself I will give the method they propose.

Toronto, Ont., Sept. 13.

Dear Sirs:—We understand you manufacture corrugated packages for comb honey. Please send us twenty-five circulars showing the package, for we received some honey in this form, and we want to give a description to apiarists in Ontario. So a package of twenty-five circulars will be appreciated by mail promptly on receipt of this.

RUTHERFORD, MARSHALL & CO.

In discussing wax-presses and propolis in a footnote on page 393, July 1, doubt is expressed as to whether much propolis gets into wax where combs alone are treated. Some time ago in trying to use a wax-melter with cappings we found so much propolis in the cappings as to clog the melter after a little, and we gave it up. But it seems to me it should be comparatively easy to separate propolis from wax.

"Why is commercial wax yellow and brown?" is asked. and answered in a footnote, page 422. "Probably because most of it comes from old combs containing more or less of pollen and dirt." I believe, Mr. Editor, you are quite right. Wax as it comes from the abdomen of bees appears, so far as I have seen, of pearly whiteness; but often when built into comb it will, even before brood is placed in it, or pollen, contain more or less of—well, we may as well call it dirt, or bits of wax with some foreign substance in it. Wax will very readily take color, as I have colored more or less with analine dyes. Where the larger part of pollen gathered is yellow, it is little wonder that the color of wax is yellow. I often wonder that wax rendered from old combs comes out as clean or free from color as it does; and yet when allowance is made for pollen and dirt I fear we have not wholly accounted for the color of wax. For many years I have extracted the honey from light sections and put them away for use the following year, and am always surprised in the spring to find them less white than in the autumn previous. Sometimes there is a perceptible yellow tinge or brownish shade that did not show the autumn before; and I can not get good-looking filled sections unless they are cut down and new comb built over the old.

CONVERSATIONS WITH DOOLITTLE

AT BORODINO, NEW YORK.

HOW FAR APART SHOULD BEES BE KEPT TO INSURE PURE MATING?

"Mr. Doolittle, I have purchased a select strain of bees which I wish to keep pure, and I wish to know how far from other bees they must be kept in order not to have my queens meet with drones from other apiaries."

"This is a question which confronts every bee-keeper who wishes to improve his stock by a careful selection of the best out of his own yard, as well as one like you who has something different from the common run of bees. The great majority of our practical apiarists of to-day are ever on the alert for the improvement of stock; and through this it is evident, to even the careless observer, that our bees are very much improved over what they were forty years ago when I commenced in this business."

"In looking over an old bee-paper I found this: 'There are some who entertain the idea that a race of bees can not be kept pure unless they are isolated several miles from all other races. I have tested this matter pretty thoroughly during the last twenty years, and have found that half a mile is as good as a much greater distance.' Do you believe that to be correct?"

"I could not accept such a distance as insuring purity except at certain seasons."

"I had thought that from a mile to a mile and a half might do, but was hardly ready to endorse this half-mile matter without coming and seeing you about it. If this could be correct it would not be much of a trick to insure safe mating."

"That is so. I do not doubt that many of our breeders of queens would give from $500 to $1000 if they were sure that all their queens would be purely mated if all objectionable colonies need not be more than half a mile away. But all honorable breeders of queens will multiply that half-mile by eight, and then not feel sure that *all* of their queens will mate with the desired drones."

"What! You do not wish to convey the idea that all other bees must be four miles away from those I have purchased if I am to secure the pure mating of my queens?"

"That is what I wish you to understand unless you raise your queens and drones so as to have them flying before the 10th of May or after the first of October."

"Why do you specify such dates?"

"Because in all localities north of 40, north latitude, early in the spring or late in the fall drones do not fly very far; but during the summer months I am satisfied, by being at the congregating-places of drones, that they fly for miles around to these places, and that the queens come to meet them."

"What do you mean by drones having congregating-places?"

"Just what the term implies. During the summer months, particularly July and August, thousands if not millions of them come together from the many colonies (my experience would say) contained within a circle encompassing eight to ten miles in diameter, coming mostly between the hours of half-past twelve and three o'clock each pleasant afternoon."

"What put such an idea into your head?"

"By first hearing a roaring each pleasant afternoon, as of a swarm passing over, when at work in a cornfield in July, cutting the weeds out of the corn. As I could not find any swarm, and as I heard this every pleasant day in the afternoon only, I soon gave up the swarm idea and began studying on the matter. This cornfield was on a hill; and by lying on my back between the rows of corn, and looking steadily up, with the corn partly shading things close about me, I could see hundreds of swift-flying objects darting and circling in all directions. A day or two later, a sort of purring object passed my head and alighted on a stalk of corn; but before I got to it one flew away, which looked like a queen-bee, and another fell to the ground. I picked up the one which fell to the ground and found it to be a dead drone. This solved the mystery of the humming noise. I have several years since known of the drones collecting over this same hill, but many years they do not. Last year their congregating-place was over a little grove which I passed in going to my cottage on the lake. My first thought was that a swarm of bees was passing over, when I was arrested by the great humming noise; but as it kept up right along, I knew what it was. I heard it every time I went to the cottage for some four weeks."

"But how about the early and late raised queens?"

"The trouble with the early queens, as well as the late ones to some extent, is to rear *good* ones, though the chances are much better for raising good queens the last week in September than in the spring."

"But if I succeed in raising good ones?"

"Then you encounter the next, or what some consider the greater difficulty, that of having early drones, or of coaxing the bees to keep drones till late in the fall."

"But is there no way of securing the mating of good queens to the drones you wish?"

"There have been many plans advised and given; but the best thing I know of is to put the last frames of drone brood your drone-breeding queen is likely to have in some queenless colony, prepared with many young bees and much honey, when, the last of September, you will raise a lot of queens from your best queen-breeder; and when they are about old enough to fly to meet the drone, go over your colony of drones, and pick out all the smaller drones, saving only the largest and best of the lot, when, if all other colonies within half a mile in any direction have killed off their drones, you will be likely to get just what you want. This is the way I secure my finest breeding-queens, and I understand that some of the great queen-breeders of the world have adopted the same plan."

GENERAL CORRESPONDENCE

THE SO-CALLED MANUFACTURED COMB HONEY.

The Producer and the Buyer Both Partly Responsible for the Stories Concerning it.

BY E. M. GIBSON.

At a restaurant in San Diego a man told me that he had sold lots of comb honey, but that it was mostly manufactured stuff. I asked him if he was sure that it was manufactured, and he said there was no mistake about it—that he had sold tons of it, and that his son was selling it at that time. When I asked him if he would object to making two thousand dollars, if he could do so honestly, and with but little effort, he said he certainly would not, and I told him of the offers of the A. I. Root Company and of the National Bee-keepers' Association, and assured him that, if he could prove beyond a doubt that the honey was manufactured, there would be no trouble in collecting the money. Although I talked in a mild and kindly manner, the man was angry, and he left the table, and I have not seen or heard of him since. He was badly worsted in the argument, as all who heard it could plainly see.

Are people wholly to blame for thinking that honey can be manufactured, especially extracted honey? In my opinion the producer and the buyer are partly to blame—the producer because he puts on the market honey of an inferior quality; and the buyer because he buys and pays as high a price for it as for good honey, and sells it for first-class honey. In foreign markets, as well as in our own, California honey is quoted at a better price than all other kinds; but the producers, or at least many of them, are not doing their part in trying to maintain the prestige which this honey has, and which, by right of superiority, it deserves. I know of some who do not strain their honey, but simply put it into cans as it comes from the extractor. On removing the screw caps I have seen the particles of comb so thick on the top that one was obliged to dig a hole through it to get to the honey. I wish I might be able to say something to convince these bee-keepers that they are standing in their own light; but it is of little use to write about it, for such bee-keepers never read bee journals. Let us do what we can to educate the buyers. That is what I try to do at every opportunity.

The only way that I can account for the careless ways that bee-keepers in this State have fallen into is to lay it on to the mild climate. Bees need so little attention and protection that they are neglected in other ways. If the owners had to carry their bees in and out of cellars at least twice a year, or give them protection from the cold to avoid losing them, many of them would be obliged to go out of the business. Others try to do too much with the facilities which they have. An inevitable result is that they fail in doing any thing well.

The advice of Mr. Doolittle to beginners (to go slow) is excellent. A young man came to me several years ago and said he had saved up several hundred dollars and was going to invest it in bees. He had never had any experience, but was going to buy two hundred colonies to start with. I advised him to buy not more than twenty-five, subscribe for a bee journal, and learn something about the business. But he thought he knew best, and he bought the bees Two years after this I saw him with several other men picking up cobblestones on the streets and throwing them into a scraper to be hauled away.

WHEN DO BEES GNAW SPLINTS? SPLIT BOTTOM-BARS.

Bees gnaw splints under the same conditions that they gnaw foundation; that is, when frames of foundation are put in too soon when the colony is not sufficiently strong to build them out quickly, and also when such foundation is left in too long. Under these conditions bees will gnaw the foundation whether it is put in supported by wires or by any thing else; and, of course, if the splints are not pressed in closely or if they do not fit close to the bottom-bar, there is an added incentive for the bees to gnaw at the wood. I never fill a super with foundation, no matter how strong the colony may be, for the bees nearly always make bad work in some of the frames. If I do not have drawn combs enough left over for the season's use I take from the supers of the largest colonies, as soon as the bees commence to build freely in the spring, two frames of drawn comb and replace them with frames of full sheets of foundation. I continue this until I have drawn combs enough for the season. In this way the combs are nicely drawn out, and by the time the honey-flow begins I am all ready for it.

On page 490, August 15, Dr. Miller says that he would rather have a whole bottom-bar than a split one if the comb is waxed to it. I wish he had told us why. There may be some disadvantage not apparent to one who has never used splints; and as I have ordered 36,000 sawed at the mill to replace those that I already have now, I am wondering if I have made a mistake. However, I do not like the idea of waxing the foundato the bottom-bar; for when splints are put in, the foundation must be warm; and when warm it expands. If it is fastened to the bottom-bar, when it is warm it shrinks and pulls loose after it cools. On the other hand, if it is fastened when it is cool, it gets warm and buckles when the super is put on the hive. Last year I punched holes in the bottom-bar to receive the splints, and this plan answered fairly well, but occasionally the splints would get out of place at the ends, and the comb had to be bent back. If the splints were held between the halves of a

split bottom-bar, I do not see how this trouble could occur.

Jamul, Cal.

WHAT CAUSES BEES TO GNAW SPLINTS?

I believe that the conditions under which bees will or will not gnaw under the foundation and the splints are governed by the honey-flow. If there is a good honey-flow they will be too busy with them; and, on the other hand, should there be no flow they will gnaw just for sheer aggravation's sake. Idle hands, you know, will find some mischief to do. Then another thing, if the colony is weak, or, in other words, has an abundance of room, they are apt to gnaw the foundation because they like to have all their stores accumulated as much as possible in one part of the hive; hence the trouble we have in making them fill all the sections evenly at about the same time clear to the corners unless baits are placed in the corners as well as in the center. M. E. PRUITT.

Vancourt, Texas.

THE PROPER WAY TO USE SPLINTS.

I have used splints for two years, and I believe that there is only one way to apply them. I put them in boiling wax and allow them to boil until they have quit foaming, but this is not long enough, for I have found that the bees sometimes gnaw them out. If they are boiled an hour, the wax gets clear through the wood, and there is no trouble. They should be pressed into the foundation far enough so that they will be flush with it, but not so far as to cut the foundation in two. GEO. J. FRIESS.

Hudson, Mich.

HONEY-DEW AND THE PURE-FOOD LAW.

Paper Read by W. A. Selser before the Pennsylvania Bee-keepers' Convention at Lebanon.

[While it is our rule not to publish the full text of convention papers, yet by request we are placing this before our readers. It contains matter of much importance on a vital matter before bee-keepers all over this land.—ED.]

The pure-food law as now upon our statute-books requires the bee-keeper, in selling honey, to brand every package with a truthful and accurate statement of the contents. For instance, for many years all white honey has been branded "White Clover;" the terms have almost become synonymous, when, as we all know, only a small part of white honey is strictly and entirely from white clover. One large firm in Brooklyn has been putting up a brand that has become famous in the way of light-amber honey which they call "Orange Blossom." The facts are, while the honey comes from Florida, it is actually from saw-palmetto bloom, and never saw an orange-tree. This branding is ruled out by the recent law. If one puts the brand of any flower on his honey, every particle of that honey must be secured by the bees from that identical flower.

Again, the law does not forbid the bee-keeper putting in glucose or glycerine to cheapen his honey or to keep it from granulating, as the case may be; but if he does this the exact amount he has added must be stated on the label. If the bee-keeper is not entirely satisfied that his product is from one particular flow, he may simply brand it "Pure Honey." There could be no fairer law, in my estimation, nor one that could have brought more beneficial results to the bee-keeper. In fact, it has inspired more confidence among the grocery trade; and in place of the bee-keeper being looked upon with suspicion when he offers his product for sale, a much better feeling and tone have arisen as a result of this law in the last three years.

The pure-food law practically says that honey is the nectar of flowers gathered by the bees. The writer has assumed the position for many years that the nectar as produced in the blossoms is different from any other known natural sweet. In carrying out this theory some eight or ten years ago I advertised to pay $10.00 an ounce for any nectar that could be procured from any blossom throughout the United States. I secured, among others, a sample from California under an affidavit that it was extracted by a pipette, and found it sustained my theory that this nectar was in reality levulose, all other natural sweets being dextrose. This coincides with the requirements under the chemical standard of pure honey, that it must all show a levulose rotation, or a turning of the plane of the polariscope to the left. Now, then, honey-dew is not nectar, but "bug juice," or a product of the aphis. Therefore it is largely dextrose—sustaining my theory as heretofore stated. This is why honey-dew can not be classed under the pure-food law as honey, which, it seems to me, is very fair and just. But it can be sold by branding it "honey-dew honey."

Some nine or ten years ago I received a number of samples of honey-dew from the central part of this State. I analyzed them, and found them to contain mostly honey-dew, but not in such large proportions as the honey-dew of this year. So I would say, from close observation of almost a quarter of a century, that this has been the first year honey-dew has been so general.

Desiring to know the practical results from all parts of the United States, and hoping to obtain some information that might be helpful to the bee-keepers to-day, I sent out a large number of letters to the large bee-men all through the country, asking the following questions:

1. Have you found honey-dew more prevalent during the rainy or the dry season?
2. During what months of the year have you found it most prevalent?
3. Do bees gather honey-dew when there is another flow in the field?
4. Have you had any experience with bees wintering on honey-dew?
5. Have you had experience with selling honey-dew to the baking trade? If so, how does it work?

6. Do bees swarm out as quickly on honey-dew as on regular nectar?

7. What is the average price you have obtained for honey-dew?

Among the replies received was one stating that such a determined effort to get at facts as our Pennsylvania bee-keepers were making puts us at the top of the list as progressive bee-keepers in investigating this interesting subject. Boiling down the voluminous correspondence in answer to these queries I report the following:

First answer.—Connecticut, Mississippi, and Colorado report "dry;" Michigan, Kentucky, Texas, and California, "wet."

Second.—California reports March and April; Mississippi, April and May; Colorado, June; Michigan, July; Texas, October.

Third.—Connecticut, Colorado, "Think not;" Michigan, Kentucky, Mississippi, and Missouri, "Yes."

Fourth.—Kentucky says "No." They find aster the best wintering honey, and use honey-dew to build up in the spring; New York states that, if the taste is not rank, the bees winter all right on it. Missouri reports that, if the bees can fly all winter, it is all right; Colorado states they lost half of their bees from it in the winter of 1908; in Texas they will winter well.

Fifth.—Most of the States report they have not had very much success trying to sell it. Dr. Miller states that he hurt his trade very much some years ago when he had a crop of it, for people thought he was adulterating his good honey, as the taste was so different.

Sixth.—Michigan, Mississippi, Missouri, and Colorado, "Yes."

Seventh.—Dr. Miller reports he sold it at the same price as other honey because he knew no better; Michigan and Missouri report getting 10 cts. at one time; Colorado used all their crop for spring feeding; in Texas it sold for 5½ cts.

From all this correspondence I glean the following facts:

1. Honey-dew is fine for building up in the spring or increase in the summer.

2. Very dangerous as a winter food in northern latitudes.

3. Very bad for a good reputation.

4. Against the law in quantities over 20 per cent.

I have here a large number of samples in test-tubes which may be helpful to the bee-keepers in arriving at some idea regarding the color line to determine the quantity of honey-dew in his product.

Sample No. 1 contains 10 per cent of honey-dew mixed with white-clover honey. If your honey is no darker than this sample it will pass inspection.

Sample No. 2 contains 20 per cent of honey-dew. Should your honey show this color, and you have a suspicion that your bees have been working on honey-dew, it would be wise for you to have it examined by a chemist before selling it as pure honey.

Sample No. 3 contains 30 per cent of honey-dew. Honey of this shade which has been gathered during a honey-dew flow would not pass.

I also have samples running up to 40 and 50 per cent to show the average of the honey-dew crop of this season. Of course, as you understand, we have amber honey and a fall honey which would duplicate these colors, and yet might not contain a particle of honey-dew. But this year, through our State honey-dew came during the white-clover flow, with practically nothing else in the field, and, therefore, if you could carry these colors in your eye it would be very helpful as a simple test for judging your own product.

BEE-BREEDING.

A Plea for More Systematic Methods; Different Localities Need Different Bees.

BY L. E. BALDWIN.

If the human race should be suddenly annihilated in North America our bees would become *wild*, and a mixing of the races of bees would at once begin; and after a few hundred years there would not be a colony of *pure* Italian, blacks, or any of the races of bees we now have; but they would all be blended in one *American* race of bees.

Wax-moths, hard winters, and poor seasons would weed out the weak and less vigorous bees, and the result would be a race of bees, adapted to the conditions of the country, that would be hardy and vigorous, and immune to many of the diseases that now trouble us. The same result could be obtained in a few generations by careful and systematic breeding.

We now follow fads and fancies largely in the improvement of our bees, and every little while a craze starts after a new race of bees which are introduced indiscriminately, possibly from a country where box-hive bee-keeping is in order, and thus upset what progress has been made—in the way of breeding non-swarmers, for instance.

If we would take the races we have now, and cross and blend and select and improve them, we could have a *distinct American race* of bees in a few years. The mingling of races has produced the American people, who are the best hustlers on earth: now why not do the same with our bees?

True, it would take some time to establish a type; but a "standard" could be established, as is done with poultry, and great *improvement* could be made in a short time.

Prof. Holden, "the corn man," lays great emphasis on the importance of *each* farmer selecting and improving his *own* seed corn to suit the peculiar soil and climatic conditions of his own farm. The same rule will apply to bee-keeping. Characteristics might be developed in Michigan that would be a disadvantage in Florida, or *vice versa*. Each locality has some condition peculiar to itself that needs to have some trait developed in the bees to meet the condition. For instance, Mr. F. R. Beuhne, of Australia, says that he had to develop a strain of bees that were im-

mune to bee-paralysis, and at one time suffered the loss of $500 by the introduction of a strain of bees from a locality where this immunity was not developed because it was not needed.

In a location where the main honey-flow comes very early in the spring a strain of bees which will furnish a strong force of workers very early is absolutely necessary; while in a place where the main flow comes late in the season this same trait would be a disadvantage; for, by the time the honey-flow comes on, the queens will be exhausted, and, consequently, the force of workers will be smaller. In a location where the honey-flow is prolonged, long-lived bees will command a premium. In short, to make a success the bee-keeper has need to understand thoroughly both his location and his bees.

Georgiana, Fla., Sept. 26.

[We could accomplish much more in this matter of developing desirable traits in our bees if we could control the male parentage. While something has been done, and can be done yet under conditions as they exist, the work is slow as compared with what can be accomplished in the case of poultry and ordinary farm stock where a selected male can be bred to a selected female. If some enterprising queen-breeder will locate on an island, raise all of his drones from a choice mother, and raise all his queens from another select mother, he may accomplish results that can not be secured in an ordinary inland location. It would be necessary, doubtless, for him to keep drone-traps on all other colonies, so that nothing but the drones of the select queen would have the freedom of the air. Who, among our queen-breeders, will be the first to have the enterprise to locate on an island so he can truthfully say he has queens mated to selected drones?

Away back in the early '80's Mr. D. A. Jones attacked this problem in earnest. He located in Georgian Bay, Canada, several bee-yards on as many different islands. One he called Holy Land, another Cyprus, another Carniola, and another Italy. But owing to the coldness of the locality and the lack of natural forage he was obliged to give it up. It was too expensive to keep a man on those islands and support so many colonies on sugar syrup.—ED.]

ARE QUEEN-EXCLUDERS HONEY-EXCLUDERS?

Some Proof Going to Show that They are Not.

BY W. F. COX.

I read the article by Mr. Scholl, page 491, August 15. Of course, every one admits that all excluders interfere more or less with the ventilation of the hive, and the bees in hot climates like Texas will suffer more from the heat than would bees in milder climates. It is, therefore, just possible that the location causes the difference of opinion in regard to excluders. Possibly Mr. Scholl has never tried the new wire excluders, which I consider quite an improvement on the old perforated-zinc style.

All authorities agree that the nectar as it is gathered from the flowers is stored directly in the brood-chamber. For this reason the excluders have no direct effect on the honey-yield. Again, we are told that the nurse bees are the ones that carry the honey from the brood-chamber to the supers, and this is done at night when there is plenty of time. By morning the brood-nest is free, and the field bees can go on all the next day storing honey in the brood-chamber, to be removed again the following night. Is it not possible that the bees simply pass the honey through the excluders to the bees above in the supers just as the fielders on entering the hive give their honey over to the nurse bees? I may not be orthodox, but this looks reasonable.

As for results, I have given the matter extensive trials several times, and can see no difference in the amount of honey gathered whether I use the excluders or not. However, there is a difference in the quality of the honey. To illustrate this point, we will take, for example, two colonies of bees exactly alike as regards the race, hives, brood, honey, etc., and of equal strength. We will put a story of empty combs over each hive, but on brood-chamber No. 1 we first put an excluder. As the honey-flow begins, both colonies will commence storing in the super at the same time, and continue at the same rate. Other things being equal, there will be no difference in the quantity gathered; but the colony having the excluder will have its surplus honey free from pollen and brood, while the other, with no excluder, may have brood and pollen all through the super. Of course, it is possible to prevent some of this, but it requires too much time and hard work to be practical.

I consider the excluder of vital importance in the production of both extracted and chunk honey, at least when full-depth frames are used, and I have good reasons for believing that they are just as important with some other sizes of frames also. After having tried to produce honey with and without excluders, my opinion is that I can not do without them at any price.

Mr. Scholl says there are other ways of keeping the queen out of the super, but I should like to ask him to tell how to do this when the surplus crop is gathered from white clover from the 20th of May to the 10th of July. As a rule, the honey comes in so fast during this period that we have no time to go around and see where our queens are. With the excluders we *know* just where they are.

One more reason why excluders should be used is that they prevent the rearing of so many drones. Full sheets of foundation help to prevent this, but my bees are still inclined to rear drones, especially during a heavy flow. At such a time, if there is any drone comb in the hive I believe the queen will find it and deposit eggs in it, even if it

were five stories above the brood-chamber, provided there were none nearer.

Garden City, Mo.

[We have had quite a number of reports in years gone by, showing that as much honey will be produced over queen-excluders as where they are not used. If Mr. Doolittle is correct (and we believe he is), that most of the honey is delivered in the brood nest, and later carried above, there is no reason why there should not be as much honey stored above an excluder as in a super where none are used.—ED.]

THE QUEEN-EXCLUDER NOT A HONEY-EXCLUDER.

BY F. GREINER.

It may be said that the larger part of the bee-keepers in Germany do not favor queen-excluders any more than Mr. Louis H. Scholl does, who says, page 491, Aug. 15, that they are not only brood-excluding but also honey-excluding. He says the conditions of a locality may make them less objectionable; and while this is undoubtedly true it appears that hives without excluders show the same symptoms here in New York as in Texas; viz., the brood appears in the upper story. This does not suit many of us, and therefore we are compelled to use the instrument of loss and torture. It does not seem to be as much a matter of locality as it is of the demands some of us make on the article we produce. It is not all gold that glitters, and it is not all good honey which is produced under the name of honey, although a man may obtain large yields of inferior or repulsive honey and make money by it. A man of a refined nature or one with a sensitive stomach does not extract from combs containing brood.

We do not want both honey and brood in our extracting-combs. Even if we wait till the brood has matured and has emerged from the cells before extracting, the honey is not nearly as fine in quality, and surely not as appetizing. We may not understand how to run our bees so as to get the most out of them, but we do not want to become rich producing an objectionable article. We may also not be able to read bee nature as well as others. With us our bees locate in the uppermost set of combs, and establish their brood-nest there with a ring of honey above the brood. This seems to be their nature. This seems to satisfy them, and the lower set of combs is largely neglected. I do not understand what our bees thus unrestricted do with the honey that others under the different condition store above excluders. In this, the poorest of all seasons, some of my colonies in a yard of fifty have given 100 lbs. above the excluder, with not ten pounds in the ten L. frames below. A friend in a more distant county took this year, in an only medium good season, 265 lbs. from his best colony over the detested excluder. All our colonies I run for extracted honey are always short of stores in the brood-nest. That does not look as though the queen and brood excluder were honey-excluding here; if so, the bees would not carry nearly all the honey above the excluder.

Mr. Scholl says the queen-excluding honey-board is an expensive implement in its first cost. It does not appear that way to me. It is very cheap as compared with the greater cost of the sectional hive, which Mr. Scholl is adopting more and more in place of the regular and more simple Langstroth hive. But he invests just the same, and considers it a good investment. I am with him; but I should not want to be without the queen-excluder. It is a good thing for me. Even in the management of the sectional hive for comb honey, it is an auxiliary which I would not willingly dispense with. Mr. Aikin, of Colorado, and Mr. Hand, of Ohio, neither one a beginner, recorded on these pages how they use the excluder with the sectional hive in the production of comb honey. I am sure they may be excused for their practices. They must think it pays them to pay good money for them.

Naples, N. Y., August 21.

HIVE-TOOLS.

Manipulating Frames; How to Do a Maximum of Work with a Minimum of Fag at the End of the Day's Work.

BY E. R. ROOT.

For some years we have been experimenting upon several forms of hive-tools. We have had different models sent to us from all over the country, and one or two have been sent from far-away Australia. We finally had our blacksmith make up from old buggy-springs several styles and placed them among our apiarists, asking them to select the one that seemed to suit their purpose best. Among all the tools that were submitted, a plain flat piece of steel, flattened and sharpened at both ends in the form of a chisel, one end bent over like a hoe, seemed to give the best satisfaction. See illustration herewith.

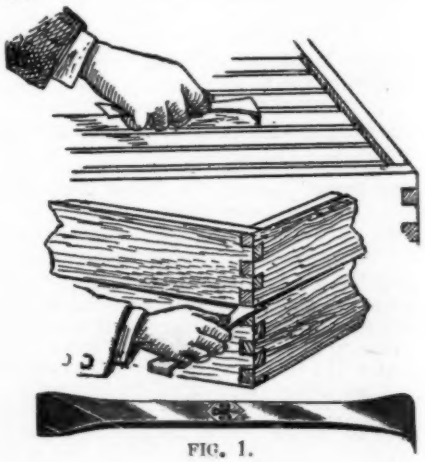

FIG. 1.

It is something that any blacksmith can make out of an old buggy-spring or any good piece of spring steel. It must not be tempered too hard or it will break. Each end should be flattened out while hot, and brought to an edge. One end is bent to a right angle, and the other is left straight. The tool is then taken over to an emery wheel or grindstone and finished up. Care should be taken to have the edges *straight and square*.

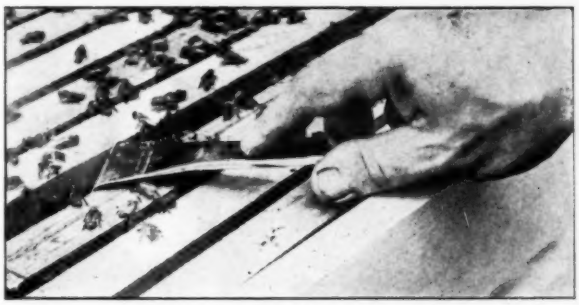

FIG. 2.—A SIDE TWIST OF THE TOOL AFFORDS A STRONG LEVERAGE BY WHICH THE FRAMES ARE SEPARATED EASILY AND WITHOUT JAR.

The hooked end is ordinarily used for scraping propolis or wax off the frames or bottom-boards, while the other end (also useful for scraping) is pushed between the two parts of the hive; but the drawing shows the tool held improperly. The bent or curved end should be placed directly against the palm in order that sufficient pressure may be exerted to shove the other or straight end between the two hive parts. See illustration on page 602 of our last issue.

FIG. 3.—ANOTHER METHOD OF USING THE HIVE-TOOL WHEN PRYING FRAMES APART.

Either end of the tool may be used for separating Hoffman frames, or, in fact, any style of frame that one happens to use; but our men prefer the hook end. This is inserted between the frames to be separated, as shown in Fig. 2, when a side twist of the wrist will exert considerable leverage, forcing apart the frames very gently. But there are some who prefer to use the straight end of the tool in the manner shown in Fig. 3; but the method given in Fig. 2 exerts more of a leverage, and, at the same time, is less liable to crush bees.

FIG. 4.—THE PROPER WAY TO PRY ALL THE FRAMES OVER AT ONE OPERATION.

Fig. 4 shows how the tool may be used for crowding all the frames over to one side in one block, as it were; or one can, if he prefers, use the plan shown in Fig. 2; but it will generally be found that the one shown in Fig. 4 is more convenient. In Fig. 5 the curved end is used to good advantage in lifting the division-board out of the hive. See also, in this connection, Fig. 9.

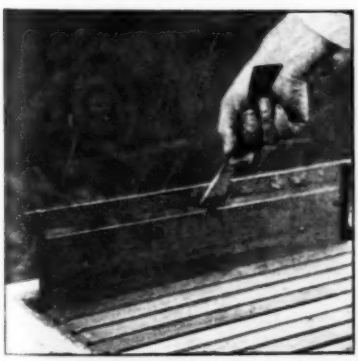

FIG. 5.—HOW THE HOOK END IS USEFUL IN FISHING OUT FRAMES AND DIVISION-BOARDS.

Some prefer a hive-tool having a narrowed end like a screwdriver; but the continuous use of a tool like this abrases the edges of the hives so that, after a time, it leaves bruise marks and cracks, inviting winds and storms, and robbers when they are prowling about. For separating two hives heavy with honey there is nothing better than a *wide thin*

FIG. 6.—MAKING A GAP BETWEEN THE FRAMES SO THAT ONE CAN BE EASILY REMOVED.

blade made of good spring steel, tempered just hard enough to have the resilient qualities of a buggy-spring.

Such a tool should be either nickel-plated or painted some bright color, like red, so that, when dropped or lost in the grass, it can be readily seen. If painted a bright red it will be in good contrast to green grass.

HOW TO HANDLE FRAMES.

Many yard men prefer to work with a sort of stool and hive-box combined; others wish to have nothing to lug around except the bee-smoker and the hive-tool. As most hives are placed on or near the ground, one must either sit down on some object or kneel in front of the hive, to bring himself to the proper working distance. We usually use a hive-cover as shown in Figs. 6, 7, 8, 9. It is always handy, and has the further advantage of a milk-stool in that one can shift his body back and forth on the hive-cover in order to reach frames toward the near or far side of the hive, as the case may be. A seat that does not allow one to shift his body back and forth, necessarily requires more stooping or bending of the back.

Occasionally it will be found desirable to turn the cover up lengthwise, and we always use it in that manner when we desire to place the weight of the body against the frame that we are crowding over against its fellows. See Fig. 8. In pulling out a division-board, one has a little more leverage if he sits high rather than low. See Fig. 9. But if he merely wishes to separate the frames, then spend several minutes hunting for the queen or looking over the brood, as shown in Fig. 7, one should sit on the narrow side rather than on the end. In this the operator assumes a very natural, easy, and comfortable position. The left arm rests upon the knee, supporting the weight of the frame, while the right arm merely holds it in a position for examination.

After removing a frame we very often lean it against the thigh; another one against the hive, and still another against the other leg. When one is at work clipping queens' wings it is sometimes necessary to have three or four frames out of the hive at once in order to give room for the proper handling of those already in the hive. When he works with bees all day he should assume as comfortable an attitude as possible, for at best he will be tired enough at the end of the day.

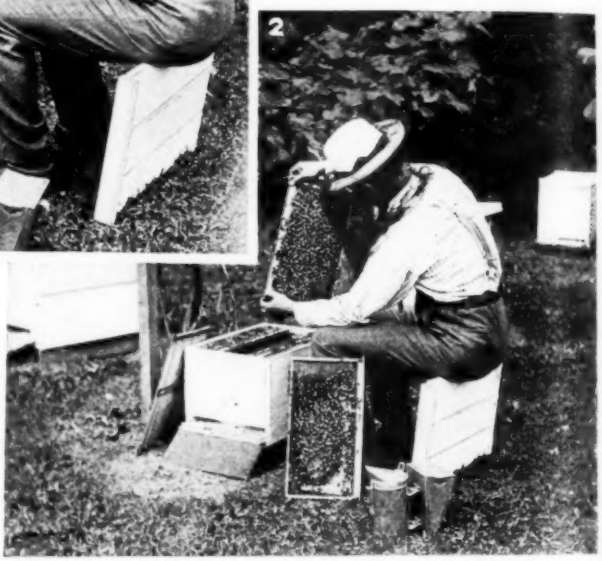

FIG. 7.—A COMFORTABLE POSITION FOR ALL-DAY WORK.
Note that the left arm that supports the weight of the frames rests comfortably on the knee.

A change of position is often restful. After one has been working over a number of hives, sitting down on the hive-cover or hive-stool, he finds it convenient to vary occasionally the position by resting on the knees close to the hive; and still again he may find it comfortable to vary the monotony by standing upright, bending over only when it is necessary to remove a frame.

Perhaps it may seem that the operator in Fig. 9 is taking things easy. There are times when only one hand can do good work. If one can assume a comfortable attitude, even though it be only momentary, he ought to do so.

We are well aware that some of our apiarists will say they have no time to sit down, much less "loaf on the job," as might appear in Fig. 6. It is our opinion, however,

that the more one can save his legs and arms the more he can actnally accomplish in a day. In hunting for a queen we can not afford to stand up on the job, but should get right down where the eyes can do their best work, as seen in Fig. 7, always holding the frame in such a way that the sunlight will strike it squarely. In looking for eggs this is very important, especially if the operator is getting

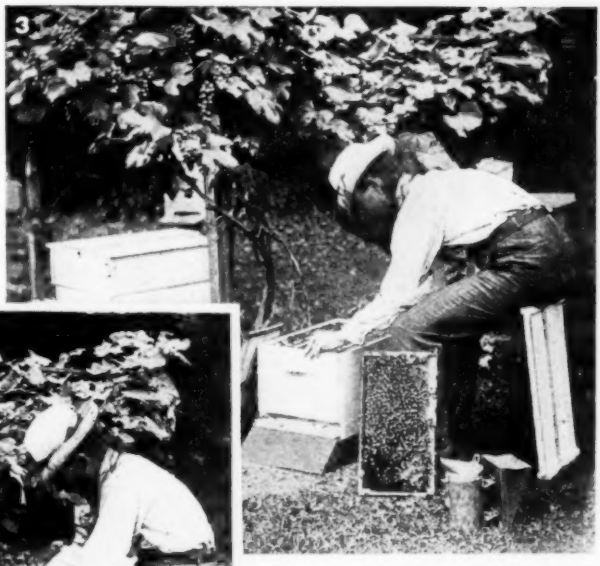

FIG. 8.—A HIGHER SEAT IS BETTER WHEN ONE WISHES TO PLACE HIS WEIGHT AGAINST THE FRAME TO BE SHOVED OVER.

FIG. 9.—PULLING OUT A REFRACTORY DIVISION-BOARD THAT RESISTS REMOVAL.

toward the shady side of life when eyesight is not at its best.

In our next and subsequent issues we expect to show snap shots of a scheme for working with bees in connection with the toolbox, and at the same time give other views of our men while in the act of forming nuclei, grafting cells, and, in general, showing the separate steps in commercial queen-rearing.

LACK OF VENTILATION ALONE TO BLAME FOR GREASY-LOOKING CAPPINGS.

A Reasonable Explanation.

BY M. E. PRUITT.

About those greasy sections, in my opinion ventilation has all to do with it. Heat expands most liquids, so that, if there is only a little ventilation, the honey becomes very warm from the heat of the bees, etc., and expands clear up to the cappings, so that there is no air-space between the honey and the caps. The wax also partakes of the heat of the honey, and shows a greasy appearance. When removed from the hive the greasy appearance does not disappear, because the air is excluded, and then some honey adheres to the caps. Just touch a piece of comb honey with the tip of the fingers so that the cappings come in contact with the honey, and it has this same appearance which can not be removed, although before the impression was made it looked clear and flaky.

Now, some one will say, "All my entrances are the same, and yet some have greasy sections (or frames as the case may be), and others haven't." Well, perhaps some colonies are in the shade; some are stronger, and so have more animal heat. They may not all face the same way; they may not all be the same height from the ground, and then, again, some may be painted and some not—so many little things control the temperature. Don't execute Her Royal Highness for nothing.

Vancourt, Texas.

DO BEES MOVE POLLEN FROM ONE COMB TO ANOTHER?

Do bees ever move pollen from one set of combs to another? That is, if a brood-chamber is placed over a hive containing full sheets of foundation with an excluder between, keeping the queen below, will the bees carry the pollen down as well as the honey?

Exeter, N. H. C. E. ADAMS.

[We do not know any reason why bees could not move pollen from one comb to another; but it is our opinion that they rarely do so. In the case mentioned we would suppose that the pollen would be left, even if the honey were transferred.—ED.]

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Raising the Hives One Inch from the Bottom-boards.

BY J. A. YEOMAN.

The article on page 504, Aug. 15, reminds me of my experience, and I am accordingly sending a photograph of my back-lot city apiary. For about four years I have been putting inch blocks under the corners of my hives. The bees use the regular entrance in front almost entirely, the opening at the sides and back serving merely for ventilation. The fence at the back and the trees at the sides probably explain this; for if the hives stood in the open I believe the bees would take the easiest way out.

For four years my bees have not tried to swarm. This year I was negligent in raising the hives to provide more room; and the result was a perfect contagion of swarming which I found difficult to break up. I have never had any comb built between the bottom-board and the frames. With the sides open all around I think that it is hardly warm enough to warrant comb-building.

The second hive shown in the engraving is not raised from the bottom-board, but, on the other hand, the bottom-board is drawn to the front over half its length, leaving the brood-chamber open to the ground. Mice and toads do not bother me. This colony, from the present outlook, will yield between 200 and 300 lbs. of honey, which I shall extract at the end of the season.

Spokane, Wash.

[The scheme of raising hives up on four blocks at the approach of the honey-flow to forestall swarming has never received the attention that it should. We should be pleased to get reports from others who have tried this plan.—Ed.]

ORANGE-BLOSSOM HONEY.

The Cause of an Unusual Dark Color.

BY EDWIN G. BALDWIN.

Mr. Root:—Apropos of your footnote to Mr. Pryal's article on orange-trees, page 236, perhaps the following data will be of interest, and instructive to your readers. You say that the orange-tree is not a prolific source of nectar. I am inclined to infer that you mean there is not much orange honey from that source on the market, rather than that you wish to be understood as saying the orange-blossom does not yield much honey. The former is undoubtedly true; the latter is hardly borne out in my own experience here in Deland. We are in the midst of many

groves, and for the past four years my colonies have averaged about 50 lbs. per hive from orange-blossom alone. I say, "from orange-blossom alone," and wish to be taken qualitatively, of course. Your footnote is quite right in adding, "As a general thing it is hard to get a strictly all-orange-blossom honey." Perhaps you will pardon my quoting from a few letters I received from my good friend Mr. Wm. A. Selser, of Philadelphia, perhaps the best authority on honeys in this country. He received a sample of orange honey from me, and wrote, "Your letter to hand, with sample of honey, which I have tested very carefully. This is the only sample I have received from Florida of which I am convinced a large percentage is from orange-blossom. I am not clear what makes the honey of a darker shade, as I am also convinced that California orange honey is of very light color." Again, later on, he writes, after testing the sample in company with Mr. W. J. Young, of the National Microchemical Laboratory: "I went over the pollen grains of both your honey and the California honey at the same time in the Government laboratory in this city about a month ago. It was very interesting. We found the same *orange-pollen* grains in your honey that we found in the California; but in addition to it we found in the California honey a lot of pollen grains of the sage brush, and in your honey we found pollen grains of an entirely new formation. I am inclined to believe they were from the saw palmetto; but, understand, these were only secondary. The main pollen grains were from the orange, showing that the main source of the honey was from the orange flow."

The sample of honey sent Mr. Selser was much darker than either of us had supposed orange honey, as pure as we knew that was, could possibly be. For three years it had not varied in hue, to any remarkable degree. It had a reddish cast, not merely amber. Its aroma was exquisite, and the body unexcelled, but the color seemed to us to be a little off. Mr. Selser added, "This brings up a very wide question as to what climatic conditions have to do with the flavor and shade of honey; and soil may also have a great deal to do with it." This year I have over 1000 lbs. of the finest orange honey one could imagine; and, *mirabile dictu!* it is of a light-yellow hue, hardly even amber; clear, and with almost none of that reddish cast that appeared always heretofore. I have been trying to solve the enigma of the color ever since I harvested my first pound of the delicious nectar, but without avail till this year. I am now sure of a solution. In the first place, I was sure the added pollen grains could *not possibly* be from palmetto blossom; it was not in bloom when I extracted. There were but two other nectar-yielding plants in bloom during the time of the orange bloom,

THE NEW JERSEY AND PHILADELPHIA BEE-KEEPERS' ASSOCIATION WHICH MET THIS YEAR AT THE APIARY OF HAROLD HORNER, NEAR MOUNT HOLLY, N. J.

INTERIOR OF W. W. TURNER'S WORK-SHOP WHERE HE MAKES HIS HIVES AND FIXTURES.

viz., the wild cherry and the cherry-laurel. I have sent samples of the pollen of these two blossoms to Mr. Young, and he now has their grains on record in the Government laboratory and museum. He will be able another time to identify them if he finds any in honeys analyzed by him. But they are not the cause of the darker hue in our orange honey, for they both bloomed this year, as well as heretofore, right in the opening of the orange bloom, after bees began working in supers, and all honey from them would have gone—*must* have gone—right into the orange honey. If it had been of any perceptible amount or off color, the hue of the resulting honey would have been dark as usual. As a matter of fact, the bees do little working on any thing else than orange when it once begins in full blast. And still the honey this year is very light. I am convinced we have found the reason. Last fall, for the first time in years, after a very rainy and damp summer the bees had their hives full of *brood* in October, but were practically in a starving condition. I had to feed many pounds of sugar to keep them alive during the winter. When the orange honey began to come in, the hives were almost destitute of honey or stores of any kind. Had the orange held off a few days longer I should have had to feed all my colonies in the spring also. Heretofore, the hives have been well filled in autumn with a dark-red honey, from the palmetto *berry* (that is, the juice from the berry of the palmetto), and there has always been somewhat of it left when the orange flow began, and supers were put on. Our opening days of orange flow are usually cool. The bees store all honey at first close to the brood—that is, right under the top-bars. As the season advances and the weather warms up, the brood-nest is expanded, the queen is given room, and the honey in those frames under the top-bars is carried up into what is now the surplus-chamber, the supers, and a dark color given to the mixture; that is, the honey would be, in that case, in the main, *orange* with a slight admixture of palmetto-berry honey but enough to give it a darker shade.

I have tested this matter very carefully for

TURNER'S HOME AND APIARY, MADE POSSIBLE BY IRRIGATING-DITCHES IN WYOMING.

four years, and I am satisfied we are at the real cause of the dark hue. I shall henceforth extract all honey in the hives just prior to the opening of the orange flow, and feel sure no more dark honey will dull the beautiful hue of the real orange-blossom honey. I shall be glad to hear from others on this whole matter, as it opens up many problems of interest to all bee-keepers who may have similar difficulties to contend with in their local flora.

I have repeatedly seen the nectar shining in the petals of the orange-blossom.

Deland, Florida.

IRRIGATION IN WYOMING.

BY W. W. TURNER.

I am sending two pictures, one showing an end of my bee-yard, and also the shop and house, and the other the interior of the shop. I am located near the Cal-Cody Ditch, and the government ditch is just beyond the big alfalfa hayfield. This ditch is fed from the big dam, which is the highest in the world. This dam is only half an hour's drive from our place. Cody City is half a mile distant. Five years ago there was nothing here but bare land.

I make all of my hives and supers, as well as every thing else shown in the interior view. Under the bear skin is the door leading to my extracting-room.

I had a nice crop of honey, and received 17 to 20 cts. for three thousand 4×5 sections here at home.

Cody, Wyoming.

CARPENTRY FOR BEE-KEEPING.

Bottom-boards, Hive-stands, and Feeders.

BY F. DUNDAS TODD.

In the matter of bottom-boards I am following Dr. Miller, and am starting out with a space of 1¼ inches under the hive. One of my reasons for adopting this depth was the apparent facility with which necessary feeding could be given in the spring; but I surely guessed wrong, for my bees emphatically needed feeding from the end of January; but they as decidedly refused to take one drop from below, even when served to them at a temperature of 95°. I was driven to give them plain candy until the atmosphere reached 48°, at which temperature they would take syrup from above—one more instance where man proposed, but the bees said *no*.

My first bottom-boards were made two feet long, giving an alighting-board 4 inches; but this proved too short when a feeder was used in the bottom-board and the hive moved forward to facilitate filling the pan; so I now make the bottoms 26 inches long and find them more satisfactory. Since these boards must carry quite a weight I am of the opinion that they should be of ¾-inch lumber. In this region of big trees it is possible to get lumber wide enough to make the floor of one piece. So the specifications read:

One piece, ¾×13⅝×26.
One piece, ¾×1¾×12⅛.
Two pieces, ¾×1¾×26.

Where such wide lumber can not be had, and this, probably, is almost everywhere nowadays, the floor must be made of narrow strips nailed crosswise, and the length of the bottom-board can be modified to suit the standard widths of lumber available.

When I have a number of bottom-boards to nail up I place the side-pieces on the bench; and at each end insert an end-piece (of course only one is nailed on ultimately), and outside of them I nail four cleats to the bench. Then it is easy to nail the floor to the sides.

HIVE-STANDS.

Since hives in this part of the world pass the winter on their summer stands I decided that the hive-stands I happened on in Illinois, because I chanced to have the material handy, would be the very thing. The usual support here is a flat board nailed to a couple of pieces of lumber, or a frame 1×3 made box fashion. I certainly did not like the flat board, as it means too much surface contact, which must be conducive to rot in the wet season. In my opinion the smaller the area of contact surface the better. At present my hives rest on three dowel-rods ⅞ inch in thickness, and so far I am satisfied with the results. These rods pass through suitable holes bored in 2×4 rough lumber; and as I prefer to have two hives on each stand, each will, therefore, consist of three cross-pieces. The specifications are: 3 pieces ⅞×42 inches, dowel-rod; 3 pieces 2x4x24 rough lumber, with ⅞-inch holes bored at 4, 12, and 20 inches, centers 2 inches from one side.

The construction is simple. Push the rods in place and fasten with nails. Cost about 20 cts.

ENTRANCE-BLOCKS.

With such a deep entrance as is given by so deep a bottom-board, an entrance-block must be used almost all the year. It is made of ¾-inch lumber, 12 inches long and at least 2½ wide. On one edge is cut a notch ⅜ by 3 inches; on the other, ¾ by 8 inches; so we have considerable choice in the size of entrance. When in place it is wedged by a slip of wood (usually a bit of a section) being forced in between its end and the side of the bottom-board. At any time a small block of wood may be dropped on the alighting-board in front of the entrance so as to contract the latter or close it entirely.

FEEDING-TRAYS.

I have already mentioned incidentally that I got fooled on my little notion about spring feeding; but the bottom feeders I am about to describe work first rate in the summer and fall months; in fact, they are of the style recommended by Mr. Hand for comb-honey production; but they are rather expensive. From a tinner I get trays 1¼x12x18 at a cost of 60 cts. each in half-dozen lots. In each is placed a rack made of 2 cross-

pieces ½x1¾x11¾; 10 long pieces ½x1½x15¼. The lumber costs 20 cts.

It will be noticed that the cross-pieces are ¼ inch deeper than the others, the reason being that a tight fit is wanted under the end of the hive so that the bees can not crawl back. In use, the tray is set in the bottom-board as far back as it will go, then the rack goes in the tray to the front, leaving a blank of about 3 inches at the rear. The hive is then placed on the bottom-board with the back resting on the rear of the rack. The blank end of the tray is covered by a board 4x14 or thereabout. It takes but a minute to lift this board and pour in the syrup, whether it be a pint or four quarts.

TOP FEEDER.

When the bees refused to take feed from below I tried the top feeder used by Mr. J. E. Chambers, of Texas, in raising queens, which has been already described in GLEANINGS. It consists of a rim two inches or so in depth that rests on the top of the hive. In the center is placed a tray whose total depth is ½ inch less than that of the rim; width about 6 inches, length 12⅛ inches. Mine are made of wood from packing-boxes rendered water-tight by working in beeswax with a hot flatiron. The bottom of the tray is set flush with the lower edge of the rim, and across the top is nailed a couple of strips of ½-inch lumber to prevent the sagging of the protecting wire netting that is above. This netting is, of course, 13½ by 19½ inches, and is tacked all round the frame. In using the feeder one removes the cover and pours the syrup into the tray through the netting.

Victoria, B. C., Can.

HOW FAR DO BEES FLY?

Some Evidence to Show that they do Not Work Profitably More than a Mile from the Yard.

BY W. A. H. GILSTRAP.

On page 286 the editor asks about how far bees fly from choice. They do not fly one mile for nectar when they can get plenty nearer. As I am now in my twentieth consecutive year of keeping from 50 to 350 colonies, I can not rank as an old or extensive bee-keeper; but a varied experience has taught me some things, and this is one of them.

In 1895, on my Chamberlain range 16 miles south of Fresno, there were about 125 colonies. My main flora was alfalfa and alkali weeds. In the best of the honey-flow at different times it was nearly out of the question to find bees on flowers three-quarters of a mile from the apiary, while anywhere within half a mile of the yard bees were abundant.

On the Esq. Ayer location in this (Stanislaus) county I had about 75 colonies in 1899. There were some honey-producing flowers and plenty of water near the bees in a westernly direction; but decidedly the main source was alkali weeds, which grew rank for about a mile in an easterly direction. Near the apiary the weeds were higher than my head, and very dense. Under these circumstances bees might be expected to go up to the Westport country and visit scattering weeds from choice; but really few bees went over a quarter of a mile from the apiary during the best of the season. The record was 140 lbs. extracted, spring count, many colonies being weak in early spring.

While alkali is an extremely free and reliable bloomer at any season favorable to its reaching warm weather, it is not as copious a producer of nectar as basswood, the sages, and some other plants.

The same year I helped move about 80 colonies to a weed-patch, and it was worth something to see the bees rush for the wilderness of bloom from early morning till well toward noon, when we left. When perhaps a fourth of a mile from the apiary (distance was only a guess in this case), we stopped and looked in vain for bees.

Now let us look at the other side of the question. A year or two after the experience noted at the Ayer yard we had a rather dry winter and an early spring, with few weeds the following summer. The honey-flow was weak till well along in summer, when honey-dew was stored at a fair rate. A fairly good search was made for the new El Dorado within the regulation 1½ miles without finding more than a trace of honey-dew. Near the close of the season two of my neighbors took a trip about 3½ miles from the apiary to a place where honey-dew was so thick that it mussed their clothes, horses, and saddles in a very provoking manner, and the bees would have probably made a record except for the long haul.

Few men understand bees as well as Mr. Doolittle; but he is evidently mistaken—clear at sea—on this question, or else I have not stated facts. That the Alexander bees gathered honey so far from home only proves that at that time the range was overstocked near home.

The foregoing applies to valley range; but I have kept bees in the hills enough to suggest that while, sometimes, they have a slight advantage there, they are apt to be hindered by the hills. An ideal range would probably be in the form of a hopper several miles wide with an apiary near the bottom, which would give the bees a "down-hill pull" to their hives.

Ceres, Cal.

BEE-KEEPING IN NEW ZEALAND.

Box Hives Being Done Away with on Account of Foul Brood.

BY BURTON N. GATES.

In New Zealand, bee-keeping appears to be experiencing tremendous progress. Not only are the apiaries increasing in number, but they are also increasing in size. The last census (1906) showed that the total harvest of wax and honey amounted to about $111,175. In 1907, good authority assures

that the crop was nearly double that of the previous year. The apiarists number more than 15,000. To-day there is probably a much greater number of bee-keepers. The old-style, careless, or shiftless bee-keeping is fast giving way to commercial methods.

Under the Apiaries Act of a few years ago there are employed two inspectors, Messrs. Gibb and Bray, who are greatly concerned in the advancement of apiculture. Much of the honey which is produced is consumed locally, but shipments to England promise good prices if they are made early.

The progressiveness of these people is indicated in several ways. There are not only five thriving bee-keepers' associations, but there are model apiaries, and opportunities for instruction in bee-keeping, all of which are utilized to the best possible advantage. There are three of these model apiaries located at the experiment stations. At all of them there are visitors constantly receiving information.

The ridding of the country of box hives is another important step, which sets many parts of the United States a good example. This good work is being accomplished by the inspectors under the Apiaries Act. Owing to the tremendous demand for hives, there has been difficulty in securing frame hives from the manufacturers; consequently, the box-hive apiaries where disease occurs have been attended to first. Gradually every box hive in the country will be put out of commission.

This act, providing for the control of infectious and contagious diseases of bees, is proving immensely satisfactory. Gradually the disease situation is being cleaned up. Mr. Isaac Hopkins, Expert Apiarist in charge of the bee interests of New Zealand, deserves great credit for his strikingly energetic effort to promote bee-keeping. His accomplishments, even so far, stand as a shining example to the rest of the world.

It is interesting to note in his report, from which these notes are extracted, that, in the parts of the country where rainfall is the greatest, there the diseases of bees appear to be worst. Where the rainfall is less, the diseases are not so prominent.

Worcester, Mass.

PURE AIR FOR BEE-CELLARS.

An Entire Change of Air Occasionally Necessary.

BY J. E. HAND.

Last winter was very mild in this section, and outdoor-wintered bees had frequent cleansing flights, and this means that they were in excellent condition. There was some loss of bees that dropped on the snow, it is true; but we reduced the loss to a minimum by the peculiar construction of our hive-entrances. An inclined board reaches from the ground to the under side of the bottom-board, which is six inches from the ground. The bees pass through the bottom-board at a distance of 3 inches from the front end. This construction admits 2 inches of packing around the hive without bridging the entrance. It can not become clogged with ice nor snow; neither can the sun shine into them to entice the bees from a hive at a time when they are likely to become chilled and perish. The manufacturers of chaff hives may, perhaps, gather a suggestion along this line.

The bee-keeper who labored under the delusion that fresh pure air is not essential to successful wintering of bees in a cellar likely got an object-lesson last winter that he will not soon forget, for he doubtless had more bees on the cellar bottom in the spring than in his hives.

We put 100 colonies of bees in a cellar about Nov. 20, a year ago, with a temperature outdoors of 38°. The next day was warm, and each succeeding day was warmer than the last, until the mercury reached 70. This period lasted with little variation for 2 weeks. The temperature within the cellar went up to 58. I was afraid to open the windows lest the warm air pouring into the cellar would throw the bees into a panic and cause them to leave the hive. However, it became evident that something had to be done soon, so we opened an outside door at night. This made the bees still worse; and the way they roared, and came out on the outside of the hive, was remarkable. However, I was determined to see the thing through, so I opened another door on another side of the cellar. This created a sharp draft of pure air. The next morning the bees were perfectly quiet. After that I opened the doors at frequent intervals, leaving them open during the night and closing them in the morning. The result of these experiments would seem to indicate that pure air is a good medicine for bees as well as for human beings. A uniform temperature is not necessary; indeed, the bees seem to welcome an occasional change.

ABSORBENT CUSHIONS OR JUST CUSHIONS.

Mr. Editor, I note what you say about absorbents over hives not having sealed covers becoming saturated with moisture. I have found that this condition exists only when the cover rests upon the chaff in such a way as to prevent a free passage of moisture-laden air, so that the said chaff becomes an absorbent instead of a conductor of moisture, which it is when a current of air is allowed to circulate between it and the covers. It is impossible to tell by the condition of the packing over the brood-chamber of my hives in winter which hives have the sealed covers and which the absorbing-cushion plan.

Where there is a free circulation of air above the chaff, the word "absorbent" is a misnomer.

Birmingham, Ohio, March 6.

[Our experience, covering years of observation on this question of absorbents in this locality, does not agree with yours quite, and our absorbing cushions we thought had good ventilation over them too. We should be glad to know the experience of others.—ED.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS

FLOUR METHOD OF INTRODUCING A SUCCESS; HOW IT WORKS IN UNITING.

I have introduced some twelve or fifteen queens by the flour method and had good success, so that I feel just as secure in using this plan as in using the old candy method.

When my hives are all supplied with good young queens I have a surplus of nuclei, so when I test out the mismated I often introduce a tested queen, nucleus and all, to the colony having the mismated queen. The flour method is just the thing for this. I remove the cover from the nucleus, sift flour over the bees and frames plentifully, which keeps them busy, and leave the cover off, if the bees are flying, while I go on with other work until all the bees return from the fields. There is no danger of robbers. I then carry the nucleus to the hive to which it is to be introduced, and, using no smoke, I remove the cover and dust flour down between the combs or sections, and dump in the bees of the nucleus, including the queen and the flour left in the bottom of the box. If the nucleus is very strong I put on an empty super, so that I can put the cover on at once. It has been my experience that not ten bees of the nucleus return to the old location, though it may be only two rods away. I have great confidence in the plan, and am sure it will work with any colony, the bees of which feel the need of a queen. If the queen is pretty lively, it may be well to put a drone-guard over the entrance for a few hours. A. D. HEROLD.

Sonora, Cal.

[If there is any one else who has tried the flour method of introducing, let him report.—ED.]

ST. JOHN'S-WORT POISONS WHITE-NOSED HORSES; REQUEENING IN STRONG COLONIES.

I have noticed the discussion about alsike poisoning, and will say that horses with white noses are frequently poisoned by St. John's-wort. Alsike clover is almost unknown here.

Will you please answer the following questions?

1. Nearly all writers advocate requeening before the bees supersede the queen, and also state that it is hard to introduce in a full colony. Then how is one to requeen if he buys his queens and does not use ripe cells?

2. Would taking away all unsealed brood from a full colony make introducing safer?

Greeneville, Tenn., Sept. 15. WM. H. BROWN.

[1. While it is generally advised to requeen before the bees supersede their old mother, it is not true that it is hard to introduce to a full colony. While a strong force of bees requires a little more care than a weak nucleus, yet thousands and thousands of queens are introduced every year by the cage method in stocks of full size. As to the matter of ripe cells, it is not necessary to use them.

2. Taking away all unsealed brood might help somewhat; but usually it is not necessary to go to that trouble.—ED.]

A MIXTURE OF LIGHT HONEY AND HONEY-DEW IN THE SAME COMB.

Before my bees stopped bringing in honey-dew they began to work on linden and other flowers, so both kinds of honey were being brought in at the same time. I had half-filled combs, some of the cells of which contained black honey, while others close by, and promiscuously mixed throughout the comb, contained as clear honey as I ever saw. I supposed that, if the bees gathered both kinds at once, it would be mixed in the cells, and possibly this may be true to some extent; but I certainly saw some cells containing black honey-dew, while others next to them contained clear basswood. In other years I noticed that, when the honey-dew began to fail, the honey stored began to get lighter as the black honey-dew gave out; but this case seems different, as each kind seemed to have been put in cells by itself. W. M. JANES.

Paducah, Ky.

[During the present year, at our south yard, when several sources of honey, including dark honey-dew, were available at the same time, many of the combs in the hives were quite spotted. There seems to be no invariable rule in the domestic economy of the hive. In some cases, all the honey will be more or less mixed, while in others some cells will contain a strictly dark honey, and others a light. During the past season at our south yard, when basswood and honey-dew were available at the same time we found there were some colonies that seemed to favor the honey-dew, gathering largely of it, while others showed a decided preference for the basswood.

Some years ago it was stated that, when buckwheat and clover are in bloom at the same time, black bees will work on buckwheat while Italians will disregard the buckwheat and work on clover. Whether a certain strain of bees recognizes quality or has a preference for some kinds of honey we are not able to say. Perhaps some of our subscribers may be able to throw some light on this question.—ED.]

HONEY OOZING THROUGH THE CAPPINGS.

The comb honey I am receiving from Florida and Alabama is weeping, or oozing out through the cappings. Can you assign any cause?

Chattanooga, Tenn., Sept. 17. G. E. LEAVITT.

[Comb honey that is a year or more old is liable to ooze as you describe. New comb honey that has been roughly handled by freight or express companies may have enough broken cappings to give the surface the appearance of "weeping." In our northern climates, honey that has been frozen will sometimes behave as you describe. We have had one or two reports going to show that honey from a certain source is inclined to leak through the cappings shortly after it has been taken from the hive.

Taking every thing into consideration we should be inclined to think the honey you refer to was old honey of last year, because the crop has been short in most sections of the United States east of the Mississippi River. While the honey may have been sold as this year's product, an investigation might show that it was produced in 1908.—ED.]

ACTUAL NUMBER OF BEES ON SWEET CLOVER COUNTED.

A sweet-clover plant came up under my bedroom window and sent out three stalks. It covers a space about three feet square, and it has been in bloom over four weeks. In this locality sweet clover comes into bloom when white clover begins to fail, and continues for four or five weeks. It grows and flourishes on rough or stony clay land that will produce nothing else. I made an actual count one day of the number of bees on this plant. At seven o'clock in the morning there were ten bees; eight o'clock, eight; nine o'clock, nine; ten o'clock, sixteen; eleven o'clock, fifteen; twelve o'clock, seventeen; one o'clock, fifteen; two o'clock, nineteen; three o'clock, seventeen; four o'clock, eighteen; five o'clock, twenty; six o'clock, eleven; seven o'clock, three. The total number that I counted was, therefore, 178; but I think I should be safe in saying that there were three times that number that visited the plant that day. Is it possible that all these bees got nectar from this plant?

Harrison, Ohio. J. G. CREIGHTON.

[This is an interesting series of observations. If more of our writers would get their information from the hives and from the fields, our bee literature would be much richer.—ED.]

WOODEN BUTTER-DISHES UNSAFE FOR BEE-KEEPERS.

I wish to warn beginners not to use the butter-dish or pie-pan feeders, as mentioned in the A B C and X Y Z of Bee Culture. I tested some butter-dishes with water, and the ones I used did not leak. Then I placed them over my frames and nearly filled them with syrup. The next noon I returned and found my hives half covered with bees. The butter-dishes had absorbed the syrup, and considerable seeped through the joints, hence the trouble. After this I used pie-pans. I filled these two-thirds full of syrup; spread cheese-cloth over them, and down to the frames. The cheese-cloth acted as a siphon, and drew the syrup over the sides of the shallow pie-pans down to the bottom of the hive, and I had another time of it. Finally I went to the store and bought cake-pans 2½ inches deep, 10 inches long, and 4 or 5 inches wide. I had no trouble with these. E. H. DICKIE, M. D.

Homer City, Pa.

[Years ago we used wooden butter and pie dishes in large numbers, running at that time something like 500 colonies. We have never experienced any trouble from leakage, and this is the first report we remember to have read where any thing of this kind occurred. With a wooden dish it is not necessary to use cheese-cloth; indeed, it better not be used at all. When *tin* dishes are used, cheese-cloth is almost in-

dispensable. It acts as a ladder so the bees can climb up the sides of the pan, and at the same time prevents drowning.—ED.]

QUEENS FLYING WHEN THE HIVES ARE OPENED.

On page 546, Sept. 1, I note the reference to the queens leaving the hive when the cover is removed. I have found this to be very frequently the case when the comb is removed from the hive. I do not think it a good plan, however, to leave the hive open the length of time mentioned in order to allow the queen to return. Instead of this I shake in the air the bees from this comb or from some other comb in the hive; and as they alight at the entrance of the hive they call the queen back. I think no queen will be lost if this is done. W. J. LITTLEFIELD.

Little Rock, Ark.

[The suggestion, to shake a lot of the bees out of the hive into the open air so they will go back to the hive in droves, thus attracting the queen, is a good one; but no harm can come from leaving the hive open for a considerable length of time unless robbers are prowling about. In case the queen does not shortly return to her own hive, it would be well to look over the combs of all the others of the near-by colonies; for if she goes into a strange hive she will be balled; and in separating the frames her presence can be very easily detected, because the missing queen will be found in the ball. After being taken from the angry mess of bees she should be caged in her own colony for 24 or 36 hours, for otherwise she would be in danger of being balled by her own subjects.—ED.]

VENTILATION OF HIVES IN A CELLAR.

Last year I had 100 colonies in the cellar. I piled the hives one above the other, five high. I leave the entrance open the full width of the hive, and then break the seal of the cover and put pieces of broken sections under each corner, at one end. The thermometer registers from 42 to 48 degrees, although it sometimes goes above 50. The cellar is in clay ground, and has rather damp walls, with stone on two sides and tile for the other two. It also has a tile floor.

Larue, Ohio. G. C. ALLINGER.

[In most bee-cellars it would be better to omit upward ventilation. Unless actual tests prove to the contrary, we would advise you to leave the cover sealed down tight. We are sure this is better for most localities and cellars, although there may be some conditions where upward ventilation is desirable. But letting the heat of the cluster escape through the top of the hive makes the interior temperature too cold. This would render it necessary for the bees to consume too heavily of their stores, with the result that their intestines would become clogged. Purging or dysentery would then take place before spring.—ED.]

VENTILATION THROUGH THE BOTTOM-BOARD IN WINTER.

Has any one ever tried boring an inch hole in the bottom-board of a hive which is to stay outdoors all winter to prevent suffocation, or to reduce the danger of it to a minimum? I am experimenting with a few hives, but I fear not enough to give positive information. A. F. BONNEY.

Buck Grove, Iowa.

[An auger-hole would be objectionable if as large as one inch in diameter, because it would admit field-mice. For outdoor wintering no entrance should be deeper than ⅜, and it would be better if only ¼ inch. In other words, our winter entrances should be in the form of a narrow slot.

There would be no danger of bees suffocating with an ordinary entrance 6x⅜ deep, providing, along in February or March, any dead bees that might clog the passageway were raked out with a hooked wire.—ED.]

COMBS CUT DOWN TO FOUNDATION BY THE BEES.

With regard to Mr. A. W. Acker's query concerning the bees cutting down the combs to the midrib, p. 477, Aug. 1, I can speak somewhat from experience. Last year I noticed in several hives that they were cutting down their combs. I made an investigation and found that it was always the old combs being cut down to the midrib. In some cases they cut large holes in them. In one case in particular I gave the dry black combs of a hive (that had died out) to one that was booming strong. They cut all the oldest combs in the super down to the midrib; but in no case did they cut down any cells that had not been used for brood-rearing. I have not noticed them at it this year. Since it is always old black combs that are thus treated I have come to the conclusion that, after rearing brood many times in the same cells, the cells become so misshapen that the bees cut them down in order to correct that trouble, else the young bees would be small and defective. I have never known any other than Italians to trim their combs thus.

Brownsville, Texas, Sept. 8. W. C. C. FOSTER.

THE INDIANA STATE FAIR.

At our State fair the bee and honey industry is well represented, there being four exhibits, and all of them very creditable. The exhibitors are Geo. M. Rumler, Mohawk, Ind.; E. L. Barnes, Bedford, Ky.; C. M. Scott Co., Indianapolis, and myself. Awards were made today as follows:

Bee-supplies—first, Walter S. Pouder; second, C. M. Scott Co.; third, E. L. Barnes.

General display—first, Walter S. Pouder; second, C. M. Scott Co.; third, E. L. Barnes.

Beeswax—first, Walter S. Pouder; second, C. M. Scott Co.; third, E. L. Barnes.

Italian bees—first, Walter S. Pouder; second, C. M. Scott Co.; third, E. L. Barnes.

Comb honey—first, E. L. Barnes; second, Walter S. Pouder; third, C. M. Scott Co.

Extracted honey—first, G. M. Rumler; second, Walter S. Pouder; third, C. M. Scott Co.

Foreign bees—first, E. L. Barnes; second, Walter S. Pouder.

Honey vinegar—first, C. M. Scott Co.; second, E. L. Barnes; third, Walter S. Pouder.

Mr. Jay Smith, Vincennes, Ind., acted as judge. Mr. George S. Demuth, Peru, Ind., gave lectures, exhibited modern bee-appliances, and showed specimens of foul brood in glass cases as an educational affair in connection with our new State foul-brood measure, Mr. Demuth being chief inspector of apiaries.

Indianapolis, Ind., Sept. 8. WALTER S. POUDER.

HOW TO KEEP THIEVES FROM STEALING HONEY.

Thieves bothered me last spring, so I nailed the hive-covers fast and raised up the back of the hive three inches, so that it would fall easily. When the thieves came the next time they failed to get any honey, for the hives dropped and the bees poured out at once. One of my colonies is pure Cyprian, and I found the bees from this colony still mad the next morning, for they met me at the gate and kept continually flying around the chimney of the bee-house.

Boonville, Ind. S. ECKSTEIN.

DO BEANS YIELD HONEY?

I should like to ask some of the bee-keepers of Michigan whether there is much honey gathered from the bean-blossoms. There are thousands of acres of beans raised here in this part of the State.

Luce, Mich., Aug. 7. WM. CRAIG.

[Considerable honey is taken from the bean-fields of California. We know of no reason why the same family would not yield nectar in other States when conditions are right.—ED.]

DOES HONEY-DEW EVER GRANULATE IN THE COMBS?

It assuredly does here, this year, seemingly within 48 hours. When dug out of the cells it looks like a miniature pillar of basalt. I rather worried about its presence; but I now find it is being consumed very fast, so that little will be left to winter on. The sugar-barrel will have to be the main source of winter stores.

Victoria, B. C., Sept. 15. F. DUNDAS TODD.

[Honey-dew in this locality apparently granulates as readily as ordinary honey. It is very unusual for *any* honey to candy inside of 48 hours.—ED.]

A CORRUGATED UNCAPPING-KNIFE.

Have any of the readers of GLEANINGS tried a beveled corrugated knife, known as a Christy bread and cake knife, on new thick extracting-combs? I find it superior to the Bingham with the offset handle, as it does not crush the comb; and though it might not do so well on uneven ones, yet for cutting down to the wood on a thick comb it is all right. Let some one try it and report. They are listed at 25 cts.

Green Ridge, Man., Can. B. BREWSTER.

OUR HOMES

BY A. I. ROOT.

And God blessed them, and said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it.—GEN. 1:28.

"Mr. A. I. Root:—Having been a reader of your writings in GLEANINGS for about fifteen years I shall take the liberty to differ with you in regard to some things you say in your article on "race suicide" in the September 1st issue, and hope you will be kind enough to have this printed. Life is all very nice for your grandchildren who can have all the automobiles, bicycles, and every thing else they can wish for, as their parents received a good education, and every advantage to equip them for their battle with the world, and stepped right into a business which enables them in turn to give all these and more advantages to their children; but how about the poor laboring class who can scarcely furnish their families with bread and butter, to say nothing of the luxuries of life? And think of the thousands of poor mothers who, perhaps, have to go out and work to obtain food, having this additional burden of child-bearing thrust upon them every year or two—for, as a general thing, this is the class of people who have the largest families. It is my opinion that a *better quality* of children instead of a larger quantity is what we need, even if Mr. Roosevelt is so much worried over the question of race suicide. The population of the United States increases so rapidly as it is (although, of course, partially through immigration) that there is not enough provision to supply the demand, and the prices of the common necessaries of life are soaring higher each year. Even now they are far beyond the reach of the laboring classes who have large families. What we most need is the education of the people to be temperate in all things, and then children will not be brought into the world under such conditions, and with no thought of what is to become of them after they are here; then there will not be so much need of finding homes for them. I, for one, if you will pardon me for being personal, although I have lost two children of my own, and am as fond of children as any one, do not think, as you say, that it is always the duty of people who are childless to adopt one at once. I think there might be a great many reasons why it would not be for the best to do so. There is a very sensible article along this line, entitled "Reluctant Parentage," and written by a physician, in the September number of *The Woman's Home Companion*. If convenient I should like very much to have you read it.

Union Center, Wis. MRS. G. W. BARGE.

Thank you, my good friend, for your kindly criticisms. No doubt *I* may have made some mistakes; but I think you, too, are making a mistake in your second sentence. Is it really fortunate and better for a child to have autos, bicycles, etc., as well as advantages for education? Permit me to say that, when Mrs. Root and I were married, the boots on my feet were not paid for; and I am afraid that, if I had been compelled to pay cash down for said boots, I should have been badly cramped. Mrs. Root's parents were but little better off than my own in the backwoods. They managed to give the young couple starting out in life a pretty fair cooking-stove; but, so far as I can remember, that is about all we got from our parents to begin with. More than that, I was not a strong nor robust young man at the time of my marriage, by any means. A good friend of Mrs. Root—a woman of age and experience—made the remark to her that she feared I had not "vitality" enough to take care of and support a wife. Under the circumstances mentioned above, many people of good common sense and experience might have thought it unwise for us to get married. I think the shoemaker who trusted me for my boots did so because I had not only always been busy at *something*, but I had thus far paid my debts promptly as I had agreed. Let us now look at the situation.

Would it have been a good thing for us if our parents had been able at the time to give us a college education, and financial help in other ways? I think the majority of people at the present time, and you too, my good friend, will recognize that it was a *good thing* for us that we were obliged to go right to work and "hustle" to make a living. My health improved by hard honest work; and as Mrs. Root inherited a good constitution from her ancestors in good old Merrie England she has always been able to do her part in the battle of life. Yes, we two talked it over, and decided we could not take care of children, or, at least, give them good care, until we got a little start in the world; but, alas for all our plans! Man proposes, but God disposes, and soon a comical curly-headed little chap came into our home almost before we knew it. He was of an inquiring turn of mind, like his father, and looked at the pictures in the *Scientific American* long before he could read, and pulled the big clock down from its shelf over on his head on the floor, because of his habit of "looking into things." Where would the A. I. Root Co. be just now had not that baby boy come into our home almost the first thing?

Again, you seem to take it for granted that both Mrs. Root and I had a college education. Neither of us ever set foot inside of a college. It was talked about, and the good pastor of our church was so anxious that *I* should go to college (and graduate) that he proposed to my father and mother that a subscription be raised, as they could not think of furnishing the means while there were *six* other children in the family. My good father (blessings on his memory) said *no* to the proposal, and my mother seconded it. This good minister, however, offered to lend me any of the books in his library, and took quite an interest in my welfare. Now comes the question, Was it a misfortune or the reverse that my parents were so poor that I was obliged to *dig* my way through difficulties? Our children and grandchildren have worked hard, and raked and scraped to get the money to buy their bicycles, automobiles, motor cycles, etc. Of course, with the facilities round about us now it is an easier thing for them to earn money than it was for me when I started in life. Our five children have all been to Oberlin to school more or less; but their father and mother raked and scraped to get the means to send each one of the five, one after the other. But the most that worries me is that our grandchildren are going to have *too* easy a time.

It *is* true that, in *some* cases, there is difficulty about procuring bread and butter for a large family of children I distinctly remember the time in my childhood when the whole family had a spell of ague and fever that so reduced our finances that for a while we ate our bread *without* butter, and I can not remember that it hurt us a bit. My good friend Mrs. Barge, has it never occurred to you that

the men who have made the greatest strides, and perhaps done the most good, came from very humble homes? In regard to T. B. Terry, it was my good pleasure to make a call on him last week, and the graham bread that was given us pleased me so much that I asked a lot of questions about it. At length friend Terry said, "Oh! see here, Mr. Root. I have something to show you about that graham bread."

He led the whole crowd of us into the kitchen and got out his little grinder and screwed it on to the table. It is called a Quaker City mill No. 4. He got it of Montgomery Ward & Co., and it cost only three or four dollars. With that little mill they grind the wheat that was grown on their own farm, and the graham flour made in that mill is what produced that beautiful graham bread. Now, I can not think there are *many* people in the United States who find it hard work to get enough good wholesome food. If they do, let them get one of these little mills, then buy some good clean wheat—that is, if they can not raise it themselves—and make their own graham flour. Cut off the profits, not only of the miller, but the *middleman*, the *grocer*, and the *baker*. Make a *short cut* from the wheat to the bread on the table, then chew it long and well, just as T. B. Terry has been urging us to do for years past, and just as Fletcher has been urging in the same way. A few cents a day will pay for the wheat; and this poor family (or anybody else) will enjoy better health than *ever* before. Instead of costing such a lot of money to live, something can be saved up for a rainy day or to take care of the *baby* when it comes. To come right down to the point, is it necessary to go to the expense of a hired girl and a great lot of useless things, just because a baby has come or is coming into the home?

You say the necessaries of life are soaring higher each year. Let them "soar." Live as Terry does, and as Mrs. Root and I do, even now, and be happy. I believe in education; but such an education as Mrs. Root and I both received does not cost any money. May the Lord be praised for our free schools. Very likely it is not *always* best to go out and get a child and bring it into the home; but I think that, in the great majority of cases, not only would the childless parents be greatly benefited, but there would be fewer growing up to make criminals just because nobody would take the trouble to look after them and lead them in the straight and narrow way.

I want to thank you for having called my attention to that splendid article, "Reluctant Parentage," by Woods Hutchinson, M. D. I had read it before you mentioned it, but I have gone over it carefully again. There is so much of good in it that I have taken the liberty to clip the following:

> The moment that any woman discovers she is married to a drunkard, a libertine, a brute, or a criminal, she ought, in my opinion, to be set free from him, not merely for her own sake and for that of the children already born, but still more for the sake of those who never ought to be born. And the state should provide liberally for her support and that of her children. When this has once been accomplished we may begin to look for a real and effective elimination of the unfit, a diminishing of crime and pauperism, and a new standard of purity in the marriage relationship, which many will find it difficult to live up to.

Now notice the grand sentiment in the next paragraph:

> There is no achievement better worth living for, no more valuable legacy that can be left to the future, no more enduring claim to honorable remembrance, than a family of well-born, well-reared children. And this feeling is showing itself already, and steadily spreading among the great intelligent upper stratum of the middle class, the people of which are the real aristocracy of any country.

I want to express a hearty amen to the above sentiment. When we come down to old age, who does not feel a little reluctant about leaving the world without anybody to come after him, and keep up his good name, and preserve a kindly remembrance of the life he lived? May God help us in our efforts to do our part in fulfilling the command to "replenish the earth and subdue it."

This question of rearing a family of children touches closely on the matter of help in the home. Right here in our own neighborhood there is a constant complaint because the help available is not only expensive but very inefficient; but my constant reply to the mothers of my acquaintance is that God is striving to teach us all wholesome and important lessons; and then if we would only recognize his loving hand in it all, and let that loving hand lead us, we shall get out of all our troubles and perplexities in this line. Notwithstanding the vehement protests and teachings of T. B. Terry, Fletcher, and Cornari, of long ago, our tables are still loaded with dishes so it takes a hired girl almost the whole forenoon to wash them up and put them away; and with such a multitude to handle, many dishes are broken. These countless dishes are needed because of the dessert and pie and other things that not only load the tables, but destroy digestion, and, as a result, require the services of expensive physicians, or even make it necessary to go to a hospital to undergo an operation; and then, besides all this, we have banquets in the evening at a "dollar a plate," and I am urged to attend because some distinguished editor or clergyman is going to speak I am getting so I dread the very mention of a banquet. May God be praised that there are at least a few like myself, Terry, and Fletcher, who have cut off all of these unnecessary and *pernicious* things. I have heard of a few people who say that they would rather live fewer years, and have a "good time" while they do live. All right. It is your privilege to follow the prevailing fashion if you wish. A good friend of mine gave as a reason for not wanting hired girls in his home (I do not like the term "hired girl;" I much prefer to say "help in the home") was that he said his grown-up daughters thought it a fine thing to ring for the "help" whenever they wanted a drink of water. This help was expected to bring a glass of water placed on a dainty little napkin on a suitable platter. The reason for all this fuss and trouble was that it was the *latest style* to be served in that way.

Once more, let me remind you that the great and good men and women came from very humble homes, where no such style was ever known or thought of. As I write, there is a great lament over the death of Governor Johnson, of Minnesota; and I am told that in some great procession that was marching behind his remains, one of the banners contained the information that he came from a home where the father was a drunkard and the mother a washwoman. Now, are the children *fortunate* or *unfortunate* who are born, reared, and educated in homes where *fashion* prevails, and where there are plenty to serve? May God help us to learn the lesson he is striving to teach us.

POULTRY DEPARTMENT

BY A. I. ROOT.

POULTRY SECRETS, FIRELESS BROODERS, ETC.

Somebody set the pace two or three years ago of charging a very big price for a very small book on poultry culture, giving as an excuse for the high price the fact that the book contained a wonderful invention, and that each purchaser would get a "family right" to make and use the invention described in said book; and finally there seemed to be a mania pervading almost all the poultry world for advertising some great secrets or new system; and while the price grew bigger the information contained in the books became smaller and smaller, and less valuable—such as sprouted oats for 15 cts. a bushel, etc. The price of the book was $5.00; but it has now come down to $1.00, and there are quite a lot of other books that in price should come away *down* while their *quality* should go away *up*. Here is a letter from the editor of *Poultry Culture*, Topeka, Kansas, which hits the spot:

I thank you very much for your complimentary remarks on our booklet. One of the main reasons that caused me to get this book out was I got "sick and tired" of seeing ideas exploited in the poultry journals as worth from $1.00 to $5.00 when the same ideas have been known to practically all the poultrymen (who are at all "on to" their jobs) for many years. Practically all these ideas have been published time and again in the poultry press; but poultrymen differ very much, and the beginners are thick every year, and they believe there are "millions in it" from the start.

Topeka, Kan., Sept. 21. R. V. HICKS.

As stated in the above, there is a great army of beginners coming along every year, I know, because I am getting letters every little while from women and children, asking me if the statements are true about the money that can be made in just a little while, in the back yard, with a *few* chickens. To illustrate the whole matter I want to give you some of my experience during the last few days.

On page 551, Sept. 1, the author of the new book, "The Dollar Hen," describes briefly the Curtiss lampless brooder. You will notice he says these parties raised 20,000 chicks last season. A few days after this was out I saw an advertisement in one of the poultry-journals reading:

DAY-OLD CHIX.

CURTISS' IMPROVED FIRELESS BROODER, $3 EACH.

After my check had been sent for the brooder I noticed they also advertised a *book* in regard to raising chickens. The price of it was $1.00. I accordingly wrote them that if they would put the book inside of the brooder I would at once remit the extra dollar or return the book, explaining that I had bought so many books that were almost worthless to me I thought I would, in the future, see the book before sending the money. They replied that they must have the dollar *first;* but they added that, if I was not satisfied the book was worth it, the money would be returned. This is the way the "book" is advertised:

RAISING CHICKENS NATURALLY AND AT SMALL COST

IS THE KEYNOTE TO A SUCCESSFUL POULTRY BUSINESS.

25,000 last season. Cost of machinery, one cent per chick; 95 per cent raised in spring and summer.

THE SECRET OUT AT LAST.

Many people wonder why we are so successful in raising chicks. We have published a little book giving our way in every detail. You can not fail if you follow directions.

Price $1.00. . Ninety per cent raised in winter.

W. R. CURTISS & CO.

This seemed fair, so I sent them the dollar. Now for the fireless brooder. When it came I was a good deal disappointed. It was a very cheap affair. The lumber had shrunk so much that the rain would go right through the roof had I not covered it with roofing-paper. When I looked for directions I could find nothing but a piece of paper containing the following, tacked on the inside of the cover:

THE CURTISS NATURAL BROODER; CAPACITY 50 CHIX.

The simplest and best brooder on the market to-day. Chix raised in this brooder are as healthy and strong as those brooded by the old hen. No oil required to run. The chix furnish the heat. Chix can not get lousy if directions are followed. Chix get the natural hen heat in this brooder, which makes strong chix. We have 300 in use now on Niagara Farm. This brooder is entirely different from any other on the market. Birds do not crowd and smother; and they always have an abundance of fresh air. Once tried you will use no other. W. R. CURTISS & CO., Ransomville, N. Y.

Price $3.00 each.

Can you, my friend, find any directions for using the brooder in the above? It says, "Chicks can not get lousy if the *directions* are followed." But what *are* the directions? I wrote, protesting, but it was some little time before I could get *any* directions as to how to run this $3.00 fireless brooder. After writing again I finally did succeed in getting the following:

DIRECTIONS FOR OPERATING THE CURTISS BROODER.

Baby chicks should have heat the first week. Use a Universal or Adaptable hover. When a week old, place our Curtiss Natural brooder in the pen in front of the heated hover; close off all chance of getting back to the heated hover. Do this at 4 or 5 o'clock in the afternoon, and they will all go into our brooder. If you have but 40 or 50 chix, use a jug of hot water or heated brick two or three times daily in the center of the Curtiss brooder for the first week. Feed, the first week, equal parts of boiled eggs, corn meal, or bread-crumbs. The brooder can be used out of doors after

May 1. Never close the opening in front unless the brooder is to be moved with chix in, or the first week to keep them in where heat is. Send for our book, "The Curtiss Natural Way of Raising Chix at Small Cost." Price $1.00.

Universal or Adaptable hovers are the best brooders to use the first week. Write us for circulars giving a full description and special prices.

W. R. CURTISS & CO., Ransomville, N. Y.

Please notice in the above they have changed the name; and instead of calling it the "fireless" brooder they call it the "Curtiss natural brooder," which I think is a good change; and we are furthermore informed that, in order to use this $3.00 brooder—that is, if we are going to raise many chicks, we must also purchase a "universal or adaptable hover." If these cost in proportion to the cost or value of the fireless brooder, I fear I shall become disgusted and stop sending my money. At present I have not been able to find out what the cost of this hover is that must go with the fireless brooder.

Let me say a word more in regard to that dollar pamphlet. They wrote me I could have my money back if I was not satisfied. Well, the "natural hen incubator" folks say something to the same effect, and so do quite a few others. Fred Grundy does not; and I am inclined to think it might be dangerous business for him if he did. Yes, it *is* very good to tell customers they can have their money back if they are not satisfied; but with all that is going on just now, and with the changed order of business in other things, many people would feel ashamed to ask for their money back *after* they had possession of the "secret" or "system." A friend of mine expressed it in this way: He says that many people, after they get their "fingers burned" in this way, conclude to let it go and be a little more careful next time when they see something enticing among the advertisements.

When I got my dollar book I found it contained some very poor zinc etchings in it, but the directions are so badly printed that I am unable to make them out even yet.

The four cuts that are given have no titles under them, and no numbers to indicate which one the writer is talking about. The book is very poorly printed, and the punctuation is exceedingly faulty, sometimes worse than none at all. There are periods where none are needed, and where there ought to be a period there is no pause at all nor capital letters;* and last, but not least, this dollar book contains only *12 pages* the size of a postal card. There are pretty nearly as many *other* pages taken up with advertising things they have for sale. One whole page is occupied in explaining that they will have a "real" book out Jan. 1—price $1.00; but nothing is said about giving the *real* book to those who have paid $1.00 already for this little bit of advertising pamphlet.* Now, this is not all. The brooder is advertised as being fireless and lampless; but here is what is said about it on the first cover:

Some people advocate using the fireless brooder from the start. We have found that this is not practical. It can be done, but the chix require so much watching and care the first ten days that we find it is much easier and better to give them artificial heat on the start for the first ten days in summer and spring, and two to three weeks in winter. Artificial heat learns them where to go to get warm, and once learned they never forget.

Well, friends, is not the above pretty tough to be told, after you have paid $3.00 for a lampless brooder, that it is not fireless after all—that you need another brooder *with* fire to go along with the fireless? They add, however, as follows:

Where you only wish to raise 40 or 50 chix there is no need of buying a heated brooder. Use a can or jug of hot water or a heated brick or soapstone, wrapped up in an old cloth to keep it from burning them and place it in center of our Curtiss natural brooder, two or three times a day the first week.

When chix are two weeks old they should not have any more artificial heat. In fact, this kind of heat after this is decidedly injurious to the little chaps. They will thrive much better, grow faster, and be more healthy if not given any, but handled exactly as we describe.

Well, the above is all right. It is just what I did with my fireless brooder in Florida, as you may remember. But Mrs. Root said she would ever so much rather have a lighted lamp than be obliged to heat up a jug of water, a brick, or a soapstone, *two or three times every day* for a week or possibly two weeks. By the way, it occurs to me to say right here that in Fred Grundy's $2.00 paper-covered primer he described what he calls his "lampless brooder," and claims that it is *patented*—nobody *else* has a right to use it, and said lampless brooder is just a box with a gallon jug filled with hot water wrapped about with two or three thicknesses of cloth. What do you think about getting out a patent on the idea of using a jug of hot water to warm chickens?

Perhaps some of you may think I have found enough fault with so simple a transaction as a dollar primer and a fireless brooder; but I think we had better have all of it while we are about it. Hastings says, in regard to the fireless brooder advertised by the Curtiss Brothers, that they cost only about 15 cents each, and that the Curtiss Brothers use something like 200 of them. That is quite an item. Well, the Curtiss Brothers, in this "dollar *book*," in their estimate of the cost of raising chickens, put the price of the fireless brooder at 50 cents. I suppose the fifty-cent one is a better-made apparatus than the fifteen-cent one; but how

* There are also some short cuts in spelling not authorized by the Reformed Spelling Association. It will be noticed that they use the short form of "chix," "dux," etc. Now, I do not object to these short cuts; in fact, they are rather refreshing; but I do like to see enough correct punctuation to enable one to understand what he is reading. We have copied the extracts just as printed.

The Curtiss folks are, no doubt, progressive people; but I am afraid the trouble is they are too busy with chickens to write a good plain book, big or little, or to look after the goods they ship out and see whether the things are finished up as they ought to be, and to send out correct directions for using such articles. I have not yet succeeded in finding out what the hole is for in the center of the big doughnut-like cushion; but I am corresponding with them, and probably shall find out after a while.

* Let me add there are ideas and suggestions in this little pamphlet that are valuable. They may be worth a dollar or more, especially to one who does not possess the Philo book; but their plan of growing a great number of chickens on a small area differs but little, so far as I can see, from the Philo system.

does it come that the one I sent for cost *$3.00?* It is true it did have one coat of paint; but the lumber was altogether too rough to do a good job of painting on it. Inside there is a circular cushion having a big hole in the center, making it look like an enlarged doughnut. What is this big hole right over the chickens for? The book does not mention it in any way. I thought it was, perhaps, where they put their jug of hot water or heated brick or soapstone; but if these heavy articles are to be in that hole they will push the burlap sheet down in the bottom, and how then could the chickens get at the jug?

Before coming out in print as I have in the above, I wrote two pleasant letters to the Curtiss Brothers, asking for information; but about all I can get from them is to "follow the directions;" that it is giving good satisfaction, etc. Very likely I am stupid in this respect; but I am sure there are a good many stupid people in this world of ours. I do not mind so much paying a good large price for things—that is, I am willing to pay even an extravagant price providing I can get a good well-finished up-to-date *book* or *brooder*.

Later.—I have finally received the following:

The Universal and Adaptable hovers mentioned in our circular are manufactured and sold by the Prairie State and Cyphers Incubator Co. We have the agencies for these goods, and sell them delivered to our customers at factory prices, thus saving the freight.

The cushion with the hole in the center is one that we use in winter, and insert a jug or can of water in the center of the hover through the cushion and burlap. In summer this hole can be filled with cotton batting or any material. This cushion was sent you by mistake. You should have had the solid cushion for use at this time of the year.

Let us now do a little summing-up, or have a little summary in regard to the $3.00 that we have to pay for the fireless brooder. After you have paid the $3.00 you must buy a lamp brooder (that will cost *a good deal more* than $3.00) of the Prairie State (price $7.00) or Cyphers people in order to have the fireless brooder start out and do good work. Of course, you *can* have a hot-water jug or a soapstone; but is it not ridiculous to call it a *fireless* brooder and make such great claims for it?

Here is something from the Petaluma *Weekly* in regard to the matter of fireless brooders:

A lack of warmth will certainly cause bowel trouble, while too much heat will cause anæmia. Some think that chicks brooded in fireless brooders get along with little or no heat. Such is not the case. When chicks are in a properly constructed fireless brooder the temperature, on a line with the chicks' backs, will be found to be found to be 100 degrees or more. The only real danger in the use of fireless brooders is that the chicks may become chilled when out of the brooders. In that case they will have bowel or some other trouble. So far I would rather risk the fireless brooder than the old style hot-hover box brooder heated by a lamp. When I place chicks in a fireless brooder I allow them out of the brooder but a little while at a time. I drive them back under the hover and close the brooder. When they have had time to warm up well I let them out again. I watch them closely and do not allow them to bunch up outside the brooder. When they begin to do this I drive them back into the brooder again. This requires that chicks be watched for the first two or three days quite closely, and by this time they will have learned to go into the brooder when cold. Chicks in fireless brooders act differently from those in heated brooders. In cold weather they will run out and exercise; and when they begin to get cold they will go to the brooder. If one or two chicks go into the brooder the rest will follow, so they are all in or all out of the brooder at the same time.

I think the above is correct, judging from what experience I have had with fireless brooders in Florida. When there comes a cold morning you can get along without a hot brick or hot-water jug if you make the chicks all stay inside or outside. If it is so cold that they get to huddling outside you will have to make them go in. And there is still another plan to obviate fussing with jugs or hot bricks. If the *sun* is shining, remove the cover of your brooder and substitute a glass sash or large pane of glass. The chicks will be very comfortable in the sun if they are out of the wind under a cover.

NOT ONLY FRESH AIR FOR CHICKENS AND PEOPLE, BUT *MOIST* FRESH AIR.

T. B. Terry has for years past been insisting that, in order to have the best of health, human beings as well as plants must have a moist atmosphere. I have described his humidifier, and told you how beautifully the house-plants thrive, even in an atmosphere that was warmed by a furnace; and I have reason to believe that one of the great benefits of outdoor air over the air of the general living-room is because the outdoor air is more likely to be a moist air. Where we have artificial heat of any kind, unless moisture is supplied the air gets to be altogether too dry for plants, domestic animals, or human beings. Artificial heat for grown-up fowls is being gradually dropped everywhere; and the new fireless brooders are demonstrating that artificial heat can be, at least to a great extent, dispensed with, even for baby chicks. Now, I wish I could get you all to take the time to turn to page 383 of our issue for June 15, and read what I said about the Root incubators and brooders. Since that article was written, Huber and I have been trying to remedy the defect in this incubator. I have told you elsewhere how I was succeeding with our new egg-tester in getting the incubator full of tested eggs. I commenced the 17th of July, putting 16 eggs (on two shelves) in the machine the day they were laid. The next day I put on 16 more, and so on until I had the incubator full—124 eggs. As soon as I could detect unfertile eggs they were taken out and replaced by others until I had very nearly 124 tested eggs in the machine. Then I began watching them almost daily, and every thing went along finely until the first 16 had come up to the 18th day. Then they commenced drying up in the shell. At this time we were having hot dry August weather; and the manufacturers of incubators, I believe, all agree that there is always a risk in running an incubator when the thermometer keeps pretty near 80 or 90.

After I had lost a part of the eggs I began experimenting with moisture. At this period many of the eggs that were pipped con-

tained a sort of glutinous matter that seemed to glue the chick fast before it could escape from the shell; and the shells were, in fact, so dry and hard that it seemed a wonder that the chick should be able to break its way out at all; in fact, I saw several with their little yellow bills where they protruded through the shell, glued fast to it, and the chicks had died right there. My daughter, Mrs. Calvert, remarked that in a dry time in summer she often took the eggs from a sitting hen just before hatching time and dipped them in warm water. Well, I dipped mine in it; but with the abundance of fresh air that was the special feature of that incubator the eggs were very soon as dry and hard as before.

I then decided I would adopt heroic measures. I got a big sponge and cut it up into little squares, perhaps half an inch thick or more, about the size of an egg. I dipped each piece in water as warm as my hand could bear, and put a piece between each two eggs. I had lost enough eggs so there was plenty of room for the sponges. There was almost an instant change in the program —no more germs or chickens, ready to hatch, died, and no more had any difficulty in getting out of the shell. Every chick that pipped an egg came out strong and lusty. There are now over forty of them; some of the oldest ones are now scampering about the yard, even if it is raining a little. When they get wet and cold they scamper back under the spread-out wings of the mother I described on page 519, Aug. 15.

So far my experiments seem to be a success. Of course, the same treatment can be modified to meet the wants of any incubator.

The above was put in type a few weeks ago, as you will notice, but did not find a place till this issue. Since then I have made two more discoveries that it seems to me are very important in the matter of incubation. Let me digress a little.

SOME MORE "DISCOVERIES."

I told you about getting 18 or 20 chickens from one hen, and she a young pullet at that, when I was on the island in Florida. Now, this Leghorn could not cover all her eggs at once very well. There were more or less eggs outside, and comparatively cold all through the sitting, and yet she brought out a remarkable brood of nice strong chickens. Once this summer (I think it was in July) I had a sitting hen that seemed to be careless about leaving her eggs exposed. I pushed them under her several times, and remonstrated thus:

"Why, you old idiot, these eggs out here are as cold as a frog. Why don't you keep them under your feathers, and keep them warm?"

She did not answer me by word, but tipped her head to one side and gave me a knowing look that seemed to say to me, "Well, who is running this, anyhow? Who knows *best* how things should be managed to get chickens? I know my own business; and if you know yours you had better get off and attend to it."

She then gave me a "cr'r'r" to emphasize her last remark. Well, she too brought off a very good hatch; and since then I have been wondering why it was that all the incubator manufacturers tell us to keep the temperature at exactly 103, and to keep our thermometer tested, saying that, if it should happen to be *half a degree* out of the way, we may spoil our hatch. Does the hen keep her eggs within "half a degree" or even within several degrees? Not much. After speculating over this matter it occurred to me that the eggs in that incubator I have described to you (the one I have been using) should not be in constant contact with the hot-water boiler. I will explain to you that a shelf holds eight eggs. This shelf slants downward at the further side so that the eggs roll down and hug the boiler. Well, I put seven eggs on the shelf so they rolled down and rested against the first eight. That made 15 eggs on a shelf instead of 8, thus almost doubling the capacity of the incubator; and in order to give them all an equal chance as nearly as I could I commenced swapping places with those two rows of eggs every *eight* hours. This is not difficult, for just before I go to bed at nine or ten I swap the eggs; then again between five and six in the morning, and the last time between one and two. You see this brings one change in the morning, before breakfast; the second after dinner, and the last just before I go to bed.

Well, there was a good deal of discussion in the neighborhood about my "system," as to whether the eggs would hatch. I started four shelves with 15 eggs each; but as it was in the month of September, and my hens were mostly moulting, I did not get a very good fertility. Three or four eggs were tested out on the fourth day from each shelf. The first shelf was run about one week, with all the eggs in contact with the boiler. This shelf showed an egg chipped on the 18th day, and I got half a dozen nice strong chickens from ten fertile eggs on the nineteenth day. The eggs on the other shelves were alternated from the start. Now, as the germination the first week is slower on account of the "swapping," it may be best to have uninterrupted contact for the first week; but the result so far has been a better hatch and stronger chickens than where heat was supplied by direct contact during the whole three weeks. So I have made two big jumps by my discovery—first, almost doubling the capacity of the incubator; and, second, getting more and better chicks. I still use the pieces of sponge to keep the air moist; but as I do not use so strong ventilation, a few pieces of moistened sponge will answer for 24 hours or more. The shutter that closes up the shelves is a sheet of flannel on a frame, so that our incubator is ventilated very much as we ventilate our poultry-houses with a curtain front. I have just taken ten fine strong chicks from the second shelf that had eleven fertile eggs.

A thermometer placed on top of the eggs

shows the temperature of the outside row to be about 97 or 98, while the rows resting against the hot-water tank show about 103. My impression is that most of the incubators could be arranged without any great expense so as to double their capacity, or nearly so, and give stronger chicks than where all the eggs are kept constantly near a temperature of 103. My invention does away with all "cooling," and all discussion in regard to *amount* of cooling, etc.

Now, my other discovery I consider of equal importance. All incubators, so far as I know, oblige the chickens to breathe in an atmosphere of 103 and sometimes 104. They do not like it, and keep tumbling over the eggs, sometimes with open mouth and panting breath, for an atmosphere such as they have under a sitting hen. No incubator made that I know of attempts to remedy this or has attempted it, because the tender sensitive body of the chick will not bear cool air. Now with the hen, especially in hot weather, the newly hatched chick very soon pushes its head out through her feathers for a breath of cool and invigorating air; and I am happy to tell you that my chicks at this time, Oct. 8, while I am dictating these words, have their precious little heads out in the cool fresh air very soon after they are out of the shell. I managed it this way: When throwing out the unfertile eggs, the top shelf is easily made vacant. This top shelf is covered with soft cloth that comes up to form a little curtain. It is held up by a brass bar that is just far enough away from the top to let the chick get its head out but not so he can climb over. As fast as I have chicks out of the shell I pick them up by one wing* (letting down the brass bar mentioned) and dropping them in on the top shelf. It at once rolls down against the hot-water boiler. This boiler has one thickness of flannel over it; and the temperature (111 to 112) seems to suit exactly. It rolls over first to one side and then the other, and in an astonishingly short time it is covered with that beautiful flossy down, gets on its feet, and puts its head out over the brass bar, for a breath of the life-giving pure cold air. While it thus breathes, its body is in contact with the warm boiler. It is just like our baby, all bundled up warm, sleeping out on the porch these October days. Now, chicks kept in this sort of nursery for the first 24 or 36 hours show a development of vigor I have never seen them show before; and I am firmly convinced that, if their little bodies are kept warm while you give them fresh cool air to breathe, they will seldom get "pasted up behind" or be troubled with any thing else that so often afflicts baby chicks the first week. May God be praised that it is my privilege to give you the above facts that I have gleaned, and to give them to you as freely and gladly as the great Father has given them to me within the past few days.

*I am well aware that we are cautioned not to open an incubator when the chicks are hatching out; and with those ordinarily heated with warm air this caution applies; but when the egg and chick are warmed by *contact* instead of 103 degrees atmosphere, I have not been able to discover that any injury arises from picking the chicks up soon after they are out of the shell, and transferring them to the nursery.

SPROUTED OATS; GREAT SECRETS; EXTRAVAGANT ADVERTISING, ETC.

I inclose $2.00 in payment of subscription to GLEANINGS for 1908 and '09. Now I am going to "haul you over the coals." You have been after the fakirs, the whisky and tobacco men, lying advertisements, etc., and many a time I have felt like patting you on the back; but to-day when I picked up the Sept. 15th issue I was reminded of the old saying, "Consistency, thou art a jewel." In the Sept. 1st issue, page 553, under the heading of poultry secrets, etc., you heartily endorse the action of the poultry-journals in exposing the fake advertising of feed at 8 cts. a bushel, etc., and in the issue of the 15th, page 5, you have actually got an advertisement of the same wonderfully cheap feed, only it's 15 cts. a bushel instead of 8; but had that been the worst feature I would have said nothing; but the advertisement as a whole seems to me the greatest lot of "hot air" I ever saw crowded into five square inches of space. If several of the statements are not whopping lies they come so near it that no respectable journal should print them.

I know a little about the poultry business, and it *might* be possible for some expert, who had had many years of experience, to make $3500 from 1000 hens in 5 months if he had several thousand dollars invested in the most complete outfit; but for this company to try to lead the general public to suppose that it is an easy thing, and that any one can do it, is simply trying to get money under false pretenses.

Let me just say here that I believe sensible men detest and abhor such expressions as "the best in the world," "excels all others," etc. Compare this wonderful advertisement with the sane, sensible, truthful one of W. Z. Hutchinson just above it. [Amen to the above sentence.—A. I. R.] I presume this slipped in some way by mistake.

I certainly do not think you are to blame for its being there; but in any case I hope I shall not see it again in GLEANINGS. ARTHUR LAING.

Corona, Cal., Sept. 21.

Friend L., the reason I consented to accept this advertisement is that I have shown up Edgar Briggs and his sprouted oats during the past two years more than any other poultryman or almost anybody else. I protested mostly because he wanted $5.00 for a book giving his secret about sprouted oats, at the same time admitting that the sprouted oats *are* a good thing if not exactly a *new* thing. Well, I think I said to Briggs that, when he put the price at $1.00 instead of $5.00, I would be willing to advertise his book, and this he has done—yes, a little more than that; a good poultry-journal for one year is thrown in. The advertisement in question offers only the book, and that at a fairly reasonable price compared with many other poultry-books; but the idea that 95 per cent of all chicks can be saved, and that *everybody* can make money out of chickens if he buys the book, is, as you say, preposterous; but it is so much the fashion to advertise every thing in the poultry line in that same way I do not know how we can well call down Mr. Briggs when a host of others are doing the same thing, and perhaps some of them worse. So far as the Briggs "system" is concerned, I have not been able to discover that he *has* any system. Philo has established a system for growing poultry on small areas; and Fred Grundy, in his book, has a sort of system; but Briggs has nothing, so far as I can discover, in the way of a system unless it is his sprouted oats. I thank you for your just criticism, and the advertisement will not appear again.